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Distribution of Phytoplankton in California Lakes

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This is a data report presenting the species and abundance of phytoplankton in the 26 lakes sampled by the National Eutrophication Survey in the State of California. Results from the calculation of several water quality indices are also included (Nygaard's Trophic State Index, Palmer's Organic Pollution Index, and species diversity and abundance indices).

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DISTRIBUTION OF PHYTOPLANKTON IN CALIFORNIA LAKES

by

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FOREWORD

Protection of the environment requires effective regulatory actions which are based on sound technical and scientific information. This information must include the quantitative description and linking of pollutant sources, transport mechanisms, interactions, and resulting effects on man and his environment. Because of the complexities involved, assessment of specific pollutants in the environment requires a total systems approach which transcends the media of air, water, and land. The Environmental Monitoring and Support Laboratory-Las Vegas contributes to the formation and enhancement of a sound monitoring data base for exposure assessment through programs designed to:

- develop and optimize systems and strategies for monitoring pollutants and their impact on the environment
- demonstrate new monitoring systems and technologies by applying them to fulfill special monitoring needs of the Agency's operating programs

This report presents the species and abundance of phytoplankton in the 26 lakes sampled by the National Eutrophication Survey in the State of California, along with results from the calculation of several commonly used biological indices of water quality and community structure. These data can be used to biologically characterize the study lakes, and as baseline data for future investigations. This report was written for use by Federal, State, and local governmental agencies concerned with water quality analysis, monitoring, and/or regulation. Private industry and individuals similarly involved with the biological aspects of water quality will find the document useful. For further information contact the Water and Land Quality Branch, Monitoring Operations Division.

George B. Morgan
Director
Environmental Monitoring and Support Laboratory
Las Vegas

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INTRODUCTION

The collection and analysis of phytoplankton data were included in the National Eutrophication Survey in an effort to determine relationships between algal characteristics and trophic status of individual lakes.

During spring, summer, and fall of 1975, the Survey sampled 156 lakes in 11 States. Over 450 algal species and varieties were identified and enumerated from the 430 water samples examined.

This report presents the species and abundance of phytoplankton in the 26 lakes sampled in the State of California (Table 1). The Nygaard's Trophic State (Nygaard 1949), Palmer's Organic Pollution (Palmer 1969), and species diversity and abundance indices are also included.

TABLE 1. LAKES SAMPLED IN THE STATE OF CALIFORNIA

STORET No.	Lake Name	County
0601	Amador Reservoir	Amador
0602	Boca Lake	Nevada
0603	Lake Britton	Shasta
0604	Casitas Reservoir	Ventura
0605	Crowley Lake	Mono
0606	Don Pedro Reservoir	Tuolume
0607	Lake Elsinore	Riverside
0608	Fallen Leaf Lake	El Dorado
0609	Lake Hennessey	Napa
0610	Lake Henshaw	San Diego
0611	Iron Gate Reservoir	Siskiyou
0613	Lower Klamath Lake	Siskiyou
0614	Lopez Lake	San Luis Obispo

(Continued)

TABLE 1. LAKES SAMPLED IN THE STATE OF CALIFORNIA (Continued)

STORET No.	Lake Name	County
0615	Lake Mary	Mono
0616	Lake Mendocino	Mendocino
0617	Nicasio Reservoir	Marin
0618	Lower Otay Reservoir	San Diego
0619	Lake Pillsbury	Lake
0620	Santo Margarita Lake	San Luis Obispo
0621	Lake Shasta	Shasta
0622	Shaver Lake	Fresno
0623	Silver Lake	Mono
0624	Tullock Reservoir	Tuolume
0625	Upper Twin Lake at Bridgeport	Mono
0626	Lower Twin Lake at Bridgeport	Mono
0627	Kirman Lake*	Mono

*Based on a single sample at special request

MATERIALS AND METHODS

LAKE AND SITE SELECTION

Lakes and reservoirs included in the Survey were selected through discussions with State water pollution agency personnel and U.S. Environmental Protection Agency Regional Offices (U.S. Environmental Protection Agency 1975). Screening and selection strongly emphasized lakes with actual or potential accelerated eutrophication problems. As a result, the selection was limited to lakes:

(1) impacted by one or more municipal sewage treatment plant outfalls either directly into the lake or by discharge to an inlet tributary within approximately 40 kilometers of the lake;

(2) 40 hectares or larger in size; and

(3) with a mean hydraulic retention time of at least 30 days.

Specific selection criteria were waived for some lakes of particular State interest.

Sampling sites for a lake were selected based on available information on lake morphometry, potential major sources of nutrient input, and on-site judgment of the field limnologist (U.S. Environmental Protection Agency 1975). Primary sampling sites were chosen to reflect the deepest portion of each major basin in a test lake. Where many basins were present, selection was guided by nutrient source information on hand. At each sampling site, a depth-integrated phytoplankton sample was taken. Depth-integrated samples were uniform mixtures of water from the surface to a depth of 15 feet (4.6 meters) or from the surface to the lower limit of the photic zone representing 1 percent of the incident light, whichever was greater. If the depth at the sampling site was less than 15 feet (4.6 meters), the sample was taken from just off the bottom to the surface. Normally, a lake was sampled three times in 1 year, providing information on spring, summer, and fall conditions.

SAMPLE PREPARATION

To preserve the sample 4 milliliters (ml) of Acid-Lugol's solution (Prescott 1970) were added to each 130-ml sample from each site at the time of collection. The samples were shipped to the Environmental Monitoring and Support Laboratory, Las Vegas, Nevada, where equal volumes from each site

were mixed to form two 130-ml composite samples for a given lake. One composite sample was put into storage and the other was used for the examination.

Prior to examination, the composite samples were concentrated by the settling method. Solids were allowed to settle for at least 24 hours prior to siphoning off the supernate. The volume of the removed supernate and the volume of the remaining concentrate were measured and concentrations determined. A small (8-ml) library subsample of the concentrate was then taken. The remaining concentrate was gently agitated to resuspend the plankton and poured into a capped, graduated test tube. If a preliminary examination of a sample indicated the need for a more concentrated sample, the contents of the test tube were further concentrated by repeating the settling method. Final concentrations varied from 15 to 40 times the original.

Permanent slides were prepared from concentrated samples after analysis was complete. A ring of clear Karo® corn syrup with phenol (a few crystals of phenol were added to each 100 ml of syrup) was placed on a glass slide. A drop of superconcentrate from the bottom of the test tube was placed in the ring. This solution was thoroughly mixed and topped with a coverglass. After the syrup at the edges of the coverglass had hardened, the excess was scraped away and the mount was sealed with clear fingernail polish. Permanent diatom slides were prepared by drying sample material on a coverglass, heating in a muffle furnace at 400° C for 45 minutes, and mounting in Hyrax®. Finally, the mounts were sealed with clear fingernail polish.

Backup samples, library samples, permanent sample slides, and Hyrax®-mounted diatom slides are being stored and maintained at the Environmental Monitoring and Support Laboratory-Las Vegas.

EXAMINATION

The phytoplankton samples were examined with the aid of binocular compound microscopes. A preliminary examination was performed to precisely identify and list all forms encountered. The length of this examination varied depending on the complexity of the sample. An attempt was made to find and identify all of the forms present in each sample. Often forms were observed which could not be identified to species or to genus. Abbreviated descriptions were used to keep a record of these forms (e.g., lunate cell, blue-green filament, Navicula #1). Diatom slides were examined using a standard light microscope. If greater resolution was essential to accurately identify the diatoms, a phase-contrast microscope was used.

After the species list was compiled, phytoplankton were enumerated using a Neubauer Counting Chamber with a 40X objective lens and a 10X ocular lens. All forms within each field were counted. The count was continued until a minimum of 100 fields had been viewed, or until the dominant form had been observed a minimum of 100 times.

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QUALITY CONTROL

Project phycologists performed internal quality control intercomparisons regularly on 7 percent of the species identification and counts. Although an individual had primary responsibility for analyzing a sample, taxonomic problems were discussed among the phycologists.

Additional quality control checks were performed on the Survey samples by Dr. G. W. Prescott of the University of Montana at the rate of 5 percent. Quality control checks were made on 75 percent of these samples to verify species identifications while checks were made on the remaining 25 percent of the samples to verify genus counts. Presently, the agreement between quality control checks for species identification and genus enumerations is satisfactory.

RESULTS

A phytoplankton species list for the State is presented in Appendix A. Appendix B summarizes all of the phytoplankton data collected from the State by the Survey. The latter is organized by lake, and includes an alphabetical phytoplankton species list with concentrations for individual species given by sampling date. Results from the application of several indices are presented (Nygaard's Trophic State, Palmer's Organic Pollution, and species diversity and abundance). Each lake has been assigned a four-digit STORET number. (STORET (STOrage and RETrieval) is the U.S. Environmental Protection Agency's computer system which processes and maintains water quality data.) The first two digits of the STORET number identify the State; the last two digits identify the lake.

NYGAARD'S TROPHIC STATE INDICES

Five indices devised by Nygaard (1949) were proposed under the assumption that certain algal groups are indicative of levels of nutrient enrichment. These indices were calculated in order to aid in determining the surveyed lakes' trophic status. As a general rule, Cyanophyta, Euglenophyta, centric diatoms, and members of the Chlorococcales are found in waters that are eutrophic (rich in nutrients), while desmids and many pennate diatoms generally cannot tolerate high nutrient levels and so are found in oligotrophic waters (poor in nutrients).

In applying the indices to the Survey data, the number of taxa in each major group was determined from the species list for each sample. The ratios of these groups give numerical values which can be used as a biological index of water richness. The five indices and the ranges of values established for Danish lakes by Nygaard for each trophic state are presented in Table 2. The appropriate symbol, (E) eutrophic and (O) oligotrophic, follows each calculated value in the tables in Appendix B. A question mark (?) following a calculated value in these tables was entered when that value was within the range of both classifications.

PALMER'S ORGANIC POLLUTION INDICES

Palmer (1969) analyzed reports from 165 authors and developed algal pollution indices for use in rating water samples with high organic pollution. Two lists of organic-pollution-tolerant forms were prepared, one containing 20 genera, the other, 20 species (Tables 3 and 4). Each form was assigned a pollution index number ranging from 1 for moderately tolerant forms to 6 for

TABLE 2. NYGAARD'S TROPHIC STATE INDICES ADAPTED FROM HUTCHINSON (1967)

Index	Calculation	Oligotrophic	Eutrophic
Myxophycean	$\frac{\text{Myxophyceae}}{\text{Desmideae}}$	0.0-0.4	0.1-3.0
Chlorophycean	$\frac{\text{Chlorococcales}}{\text{Desmideae}}$	0.0-0.7	0.2-9.0
Diatom	$\frac{\text{Centric Diatoms}}{\text{Pennate Diatoms}}$	0.0-0.3	0.0-1.75
Euglenophyte	$\frac{\text{Euglenophyta}}{\text{Myxophyceae + Chlorococcales}}$	0.0-0.2	0.0-1.0
Compound	$\frac{\text{Myxophyceae + Chlorococcales + Centric Diatoms + Euglenophyta}}{\text{Desmideae}}$	0.0-1.0	1.2-25

TABLE 3. ALGAL GENUS POLLUTION INDEX (Palmer 1969)

Genus	Pollution Index
Anacystis	1
Ankistrodesmus	2
Chlamydomonas	4
Chlorella	3
Closterium	1
Cyclotella	1
Euglena	5
Gomphonema	1
Lepocinclis	1
Melosira	1
Micractinium	1
Navicula	3
Nitzschia	3
Oscillatoria	5
Pandorina	1
Phacus	2
Phormidium	1
Scenedesmus	4
Stigeoclonium	2
Synedra	2

TABLE 4. ALGAL SPECIES POLLUTION INDEX (Palmer 1969)

Species	Pollution Index
Ankistrodesmus falcatus	3
Arthrospira jenneri	2
Chlorella vulgaris	2
Cyclotella meneghiniana	2
Euglena gracilis	1
Euglena viridis	6
Gomphonema parvulum	1
Melosira varians	2
Navicula cryptocephala	1
Nitzschia acicularis	1
Nitzschia palea	5
Oscillatoria chlorina	2
Oscillatoria limosa	4
Oscillatoria princeps	1
Oscillatoria putrida	1
Oscillatoria tenuis	4
Pandorina morum	3
Scenedesmus quadricauda	4
Stigeoclonium tenue	3
Synedra ulna	3

extremely tolerant forms. Palmer based the index numbers on occurrence records and/or where emphasized by the authors as being especially tolerant of organic pollution.

In analyzing a water sample, any of the 20 genera or species of algae present in concentrations of 50 per milliliter or more are recorded. The pollution index numbers of the algae present are totaled, providing a genus score and a species score. Palmer determined that a score of 20 or more for either index can be taken as evidence of high organic pollution, while a score of 15 to 19 is taken as probable evidence of high organic pollution. Lower figures suggest that the organic pollution of the sample is not high, that the sample is not representative, or that some substance or factor interfering with algal persistence is present and active.

SPECIES DIVERSITY AND ABUNDANCE INDICES

"Information content" of biological samples is being used commonly by biologists as a measure of diversity. Diversity in this connection means the degree of uncertainty attached to the specific identity of any randomly selected individual. The greater the number of taxa and the more equal their proportions, the greater the uncertainty, and hence, the diversity (Pielou 1966). There are several methods of measuring diversity, e.g., the formulas given by Brillouin (1962) and Shannon and Weaver (1963). The method which is appropriate depends on the type of biological sample on hand.

Pielou (1966) classifies the types of biological samples and gives the measure of diversity appropriate for each type. The Survey phytoplankton samples are what she classifies as larger samples (collections in Pielou's terminology) from which random subsamples can be drawn. According to Pielou, the average diversity per individual (H) for these types of samples can be estimated from the Shannon-Wiener formula (Shannon and Weaver 1963):

$$H = -\sum_{i=1}^{S} P_i \log_x P_i$$

where P is the proportion of the ith taxon in the sample, which is calculated from n_i/N; n_i is the number of individuals per milliliter of the ith taxon; N is the total number of individuals per ml; and S is the total number of taxa. However, Basharin (1959) and Pielou (1966) have pointed out that H calculated from the subsample is a biased estimator of the sample H, and if this bias is to be accounted for, we must know the total number of taxa present in the sample since the magnitude of this bias depends on it.

Pielou (1966) suggests that if the number of taxa in the subsample falls only slightly short of the number in the larger sample, no appreciable error will result in considering S, estimated from the subsample, as being equal to the sample value. Even though considerable effort was made to find and identify all taxa, the Survey samples undoubtedly contain a fair number of rare phytoplankton taxa which were not encountered.

In the Shannon-Wiener formula, an increase in the number of taxa and/or an increase in the evenness of the distribution of individuals among taxa will increase the average diversity per individual from its minimal value of zero. Sager and Hasler (1969) found that the richness of taxa was of minor importance in determination of average diversity per individual for phytoplankton and they concluded that phytoplankton taxa in excess of the 10 to 15 most abundant ones have little effect on H. This was verified by our own calculations. Our counts are in number per milliliter and since logarithms to the base 2 were used in our calculations, H is expressed in units of bits per individual. When individuals of a taxon were so rare that they were not counted, a value of 1/130 per milliliter or 0.008 per milliliter was used in the calculations since at least one individual of the taxon must have been present in the collection.

A Survey sample for a given lake represents a composite of all phytoplankton collected at different sampling sites on the lake during a given sampling period. Since the number of samples (M) making up a composite is a function of both the complexity of the lake sampled and its size, it should affect the richness-of-taxa component of the diversity of our phytoplankton collections. The maximum diversity (MaxH) (i.e., when the individuals are distributed among the taxa as evenly as possible) was estimated from $\log_2 S$ (Pielou 1966), while the minimum diversity (MinH), was estimated from the formula:

$$\text{MinH} = -\frac{S-1}{N}\log_2\frac{1}{N} - \frac{N-(S-1)}{N}\log_2\frac{N-(S-1)}{N}$$

given by Zand (1976). The total diversity (D) was calculated from HN (Pielou 1966). Also given in Appendix B are L (the mean number of individuals per taxa per milliliter) and K (the number of individuals per milliliter of the most abundant taxon in the sample).

The evenness component of diversity (J) was estimated from H/MaxH (Pielou 1966). Relative evenness (RJ) was calculated from the formula:

$$RJ = \frac{H-\text{MinH}}{\text{MaxH}-\text{MinH}}$$

given by Zand (1976). Zand suggests that RJ be used as a substitute for both J and the redundancy expression given by Wilhm and Dorris (1968). As pointed out by Zand, the redundancy expression given by Wilhm and Dorris does not properly express what it is intended to show, i.e., the position of H in the range between MaxH and MinH. RJ may range from 0 to 1; being 1 for the most even samples and 0 for the least even samples.

Zand (1976) suggests that diversity indices be expressed in units of "sits", i.e., in logarithms to base S (where S is the total number of taxa in the sample) instead of in "bits", i.e., in logarithms to base 2. Zand points out that the diversity index in sits per individual is a normalized number ranging from 1 for the most evenly distributed samples to 0 for the least evenly distributed samples. Also, it can be used to compare different samples, independent of the number of taxa in each. The diversity in bits per

individual should not be used in direct comparisons involving various samples which have different numbers of taxa. Since MaxH equals log S, the expression in sits is equal to $\log_S S$, or 1. Therefore diversity in sits per individual is numerically equivalent to J, the evenness component for the Shannon-Wiener formula.

SPECIES OCCURRENCE AND ABUNDANCE

The alphabetic phytoplankton species list for each lake, presented in Appendix B, gives the concentrations of individual species by sampling date. Concentrations are in cells, colonies, or filaments (CEL, COL, FIL) per milliliter. An "X" after a species name indicates that the species identified in the preliminary examination was in such a low concentration that it did not appear in the count. A blank space indicates that the organism was not found in the sample collected on that date. Column S is used to designate the examiner's subjective opinion of the five dominant taxa in a sample, based upon relative size and concentration of the organism. The percent column (%C) presents, by abundance, the percentage composition of each taxon.

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APPENDIX A

PHYTOPLANKTON SPECIES LIST FOR THE STATE OF CALIFORNIA

Achnanthes lanceolata
Achnanthes microcephala
Amphora
Anabaena circinalis
Anabaenopsis circularis
Anabaenopsis elenkinii
Ankistrodesmus falcatus
Ankistrodesmus falcatus
v. *acicularis*
Ankistrodesmus falcatus
v. *mirabilis*
Anomoeoneis costata
Aphanizomenon flos-aquae
Aphanocapsa delicatissima
Aphanocapsa elachista
Asterionella formosa
Asterionella formosa
v. *gracillima*
Attheya zachariasi
Caloneis
Ceratium hirundinella
Ceratium hirundinella
f. *brachyceras*
Ceratium hirundinella
f. *furcoides*
Chaetoceros
Chlamydomonas dinobryonii
Chlorogonium
Chroomonas
Closterium
Cocconeis placentula
Coelastrum microporum
Coelastrum reticulatum
Coelastrum reticulatum
v. *polychordon*
Coelastrum sphaericum
Coelosphaerium kuetzingianum
Cosmarium
Crucigenia crucifera
Crucigenia quadrata
Crucigenia tetrapedia
Cryptomonas erosa
Cryptomonas marssonii
Cryptomonas ovata
Cyclotella bodanica
Cyclotella bodanica
v. *stella*
Cyclotella meneghiniana
Cyclotella stelligera
Cylindrotheca gracilis
Cymatopleura solea
Cymbella mexicana
Cymbella minuta
Cymbella triangulum
Dactylococcopsis irregularis
Diatoma vulgare
Dictyosphaerium pulchellum
Dinobryon bavaricum
Dinobryon cylindricum
Dinobryon divergens
Dinobryon sociale
Diploneis
Diplopsalis acuta
Elakatothrix gelatinosa
Elakatothrix viridis
Entomoneis alata
Entomoneis ornata
Epithemia sorex
Epithemia turgida
Eudorina elegans
Euglena ehrenbergii
Eunotia curvata
Fragilaria brevistriata
Fragilaria capucina
v. *mesolepta*
Fragilaria construens
Fragilaria crotonensis
Fragilaria inflata
Fragilaria leptostauron
Glenodinium edax
Glenodinium gymnodinium
Glenodinium gymnodinium
v. *biscutelliforme*
Glenodinium oculatum
Gloeocapsa
Gleocystis planctonica
Golenkinia radiata
Gomphonema parvulum
Gomphonema truncatum
Gymnodinium ordinatum
Gyrosigma
Hannaea arcus
Hantzschia amphioxys
f. *capitata*
Kirchneriella contorta
Lagerheimia ciliata
v. *minor*
Lagerheimia quadriseta
Lagerheimia subsalsa
Lyngbya
Mallomonas acaroides
Mallomonas pseudocoronata

Melosira distans
Melosira granulata
Melosira granulata
v. *angustissima*
Melosira granulata
v. *angustissima* f. *spiralis*
Melosria italica
Melosira italica
f. *curvata*
Melosira varians
Meridion circulare
Merismopedia glauca
Merismopedia minima
Merismopedia tenuissima
Microcystis aeruginosa
Microcystis incerta
Mougeotia
Navicula cuspidata
Nacicula tripunctata
v. *schizonemoides*
Nitzschia longissima
v. *reversa*
Nitzschia tryblionella
Nitzschia vermicularis
Oocystis
Oscillatoria agardhii
Oscillatoria limnetica
Pandorina morum
Pediastrum boryanum
Pediastrum duplex
Pediastrum duplex
v. *clathratum*
Pediastrum duplex
v. *reticulatum*
Pediastrum simplex
v. *duodenarium*
Pediastrum tetras
v. *tetraodon*
Peridinium bipes
Peridinium inconspicuum
Peridinium penardiforme
Peridinium quadridens
Peridinium willei
Phacus helikoides
Phacus tortus
Phormidium mucicola
Pinnularia
Pleurosigma
Rhoicosphenia curvata
Rhopalodia gibba
Scenedesmus acuminatus
Scenedesmus acutus
Scenedesmus arcuatus
Scenedesmus bicaudatus
Scenedesmus bijuga
Scenedesmus bijuga
v. *alternans*
Scenedesmus dimorphus
Scenedesmus intermedius
v. *bicaudatus*
Scenedesmus quadricauda
Schroederia setigera
Sphaerocystis schroeteri
Spirogrya
Staurastrum
Stephanodiscus astraea
v. *minutula*
Stephanodiscus niagarae
Surirella angustata
Surirella elegans
Surirella ovata
Surirella tenera
Synedra acus
Synedra cyclopum
Synedra delicatissima
v. *angustissima*
Synedra ulna
Tabellaria fenestrata
Tetraedron constrictum
Tetraedron minimum
Tetraedron minimum
v. *scrobiculatum*
Tetraedron trigonum
v. *gracile*
Tetrastrum glabrum
Trachelamonas hispida
Trachelamonas intermedia
Trachelamonas urceolata
v. *ovalis*
Trachelamonas volvocina
Treubaria setigerum
Treubaria triappendiculata
Ulothrix

APPENDIX B. SUMMARY OF PHYTOPLANKTON DATA

This appendix was generated by computer. Because it was only possible to use upper case letters in the printout, all scientific names are printed in upper case and are not italicized.

The alphabetic phytoplankton lists include taxa without species names (e.g., EUNOTIA, EUNOTIA #1, FLAGELLATE, FLAGELLATES, MICROCYSTIS INCERTA ?, CHLOROPHYTAN COCCOID CELLED COLONY). When species determinations were not possible, symbols or descriptive phrases were used to separate taxa for enumeration purposes. Each name on a list, however, represents a unique species different from any other name on the same list, unless otherwise noted, for counting purposes.

Numbers were used to separate unidentified species of the same genus. A generic name listed alone is also a unique species. A question mark (?) is placed immediately after the portion of a name which was assigned with uncertainty. Numbered, questioned, or otherwise designated taxa were established on a lake-by-lake basis; therefore NAVICULA #2 from lake A cannot be compared to NAVICULA #2 from lake B. Pluralized categories (e.g., FLAGELLATES, CENTRIC DIATOMS, SPP.) were used for counting purposes when taxa could not be properly differentiated on the counting chamber.

LAKE NAME: AMADOR RES.
STORET NUMBER: 0601

NYGAARD TROPHIC STATE INDICES

DATE	03 14 75	06 26 75	11 12 75
MYXOPHYCEAN	0/0 O	2,00 E	0/0 O
CHLOROPHYCEAN	0/0 O	6,00 E	01/0 E
EUGLENOPHYTE	0/0 ?	0/08 ?	0/01 ?
DIATOM	1,67 E	1,00 E	2,00 E
COMPOUND	05/0 E	10,0 E	07/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 14 75	06 26 75	11 12 75
GENUS	01	04	01
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 14 75	06 26 75	11 12 75
AVERAGE DIVERSITY	H	0,19	1,94	2,73
NUMBER OF TAXA	S	11,00	18,00	14,00
NUMBER OF SAMPLES COMPOSITED	M	2,00	2,00	2,00
MAXIMUM DIVERSITY	MAXH	3,46	4,17	3,81
MINIMUM DIVERSITY	MINH	0,00	0,02	0,10
TOTAL DIVERSITY	D	13330,97	22040,34	4318,86
TOTAL NUMBER OF INDIVIDUALS/ML	N	70163,00	11361,00	1582,00
EVENNESS COMPONENT	J	0,05	0,47	0,72
RELATIVE EVENNESS	RJ	0,06	0,47	0,71
MEAN NUMBER OF INDIVIDUALS/TAXA	L	6378,45	631,17	113,00
NUMBER/ML OF MOST ABUNDANT TAXON	K	68733,00	5304,00	604,00

LAKE NAME: AMADOR RES.
STORET NUMBER: 0601

CONTINUED

TAXA	FORM	03 14 78 IB	03 14 78 %C	03 14 78 ALGAL UNITS PER ML	06 26 78 IB	06 26 78 %C	06 26 78 ALGAL UNITS PER ML	11 12 78 IB	11 12 78 %C	11 12 78 ALGAL UNITS PER ML
ANKISTRODESMUS FALCATUS	CEL					0.3	33			
APHANIZOMENON FLOS-AQUAE	FIL				19	0.6	65			
ASTERIONELLA FORMOSA	CEL	12	0.6	421						X
CENTRIC DIATOM	CEL	11	98.0	68733						
CERATIUM HIRUNDINELLA F. BRACHYCERAS	CEL						X		1.8	29
CHLOROPHYTAN LUNATE CELL	CEL						X			
CHROOMONAS ? ACUTA	CEL	14	0.8	561		12.1	1375		10.9	172
COELASTRUM RETICULATUM	COL					0.3	33			
COELASTRUM SPHAERICUM	COL					0.3	33			
COELOSPHAERIUM KUETZINGIANUM	COL						X			
CRYPTOMONAS	CEL	15	0.1	84	14	3.2	360	14	9.1	144
CYCLOTELLA MENEGHINIANA	CEL			X						
FRAGILARIA	CEL									X
FRAGILARIA CROTONENSIS	CEL		0.0	28	11	46.7	5304			X
GLENODINIUM #1	CEL							13	9.1	144
GLENODINIUM #2	CEL			X						
MELOSIRA DISTANS	CEL		0.2	112					7.3	115
MELOSIRA GRANULATA	CEL							12	14.5	230
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL								1.8	29
MELOSIRA GRANULATA V. ANGUSTISSIMA F. SPIRALIS	CEL			X			X	15	5.4	86
MELOSIRA ITALICA	CEL							11	38.2	604
MELOSIRA VARIANS	CEL									X
NITZSCHIA VERMICULARIS	CEL			X						
OOCYSTIS	CEL					0.6	65			
PERIDINIUM	CEL				12	2.3	262			
SCENEDESMUS BIJUGA	COL				13	32.6	3700			
STAURASTRUM	CEL					0.3	33			
STEPHANODISCUS	CEL	13	0.3	224		0.3	33			
SYNEDRA ACUS	CEL						X			
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL					0.6	65		1.8	29
TOTAL				70163			11361			1502

LAKE NAME: BOCA LAKE
STORET NUMBER: 0602

NYGAARD TROPHIC STATE INDICES

DATE	06 09 75	06 30 75	11 04 75
MYXOPHYCEAN	02/0 E	02/0 E	0/0 O
CHLOROPHYCEAN	0/0 O	0/0 O	01/0 E
EUGLENOPHYTE	0,50 E	0,50 E	0/01 ?
DIATOM	1,00 E	0,33 E	0,25 ?
COMPOUND	07/0 E	04/0 E	02/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	06 09 75	06 30 75	11 04 75
GENUS	06	00	00
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		06 09 75	06 30 75	11 04 75
AVERAGE DIVERSITY	H	2,66	1,84	2,04
NUMBER OF TAXA	S	14,00	9,00	8,00
NUMBER OF SAMPLES COMPOSITED	M	2,00	2,00	2,00
MAXIMUM DIVERSITY	MAXH	3,81	3,17	3,00
MINIMUM DIVERSITY	MINH	0,28	0,29	0,06
TOTAL DIVERSITY	D	1276,80	471,04	2831,52
TOTAL NUMBER OF INDIVIDUALS/ML	N	480,00	256,00	1388,00
EVENNESS COMPONENT	J	0,70	0,58	0,68
RELATIVE EVENNESS	RJ	0,68	0,54	0,68
MEAN NUMBER OF INDIVIDUALS/TAXA	L	34,29	28,44	173,50
NUMBER/ML OF MOST ABUNDANT TAXON	K	120,00	114,00	646,00

LAKE NAME: BOCA LAKE
STORET NUMBER: 0602

CONTINUED

TAXA	FORM	06 09 75 IB	06 09 75 %C	06 09 75 ALGAL UNITS PER ML	06 30 75 IB	06 30 75 %C	06 30 75 ALGAL UNITS PER ML	11 04 75 IB	11 04 75 %C	11 04 75 ALGAL UNITS PER ML
ANABAENA	FIL			X						
ANKISTRODESMUS FALCATUS	CEL									X
ASTERIONELLA FORMOSA	CEL	15	6,2	30	12	32,3	87	14	9,3	129
CENTRIC DIATOM	CEL	12	12,5	60						
CHROOMONAS ? ACUTA	CEL	1	18,7	90	14	44,5	114	15	14,0	194
CRYPTOMONAS EROSA	CEL	14	6,2	30			X			
CRYPTOMONAS SPP.	CEL							13	11,6	161
CYANOPHYTAN FILAMENT	FIL						X			
CYCLOTELLA BODANICA	CEL									X
DACTYLOCOCCOPSIS	CEL						X			
DINOBRYON DIVERGENS	CEL			X						
FRAGILARIA BREVISTRIATA	CEL						X			X
FRAGILARIA CROTONENSIS	CEL							12	18,6	258
MELOSIRA #1	CEL			X						
MELOSIRA ITALICA	CEL	13	12,5	60						
MELOSIRA VARIANS	CEL			X						
OSCILLATORIA	FIL	1	18,7	90						
STEPHANODISCUS	CEL				11	32,3	57			
SYNEDRA	CEL			X						
SYNEDRA CYCLOPUM	CEL			X						
TABELLARIA FENESTRATA	CEL	11	25,0	120	13	10,9	28	11	46,5	646
TRACHELOMONAS VOLVOCINA	CEL			X			X			
TOTAL				480			256			1388

LAKE NAME: LAKE BRITTON
STORET NUMBER: 0603

NYGAARD TROPHIC STATE INDICES

DATE	03 26 75	07 14 75	11 03 75
MYXOPHYCEAN	0/0 U	03/0 E	01/0 E
CHLOROPHYCEAN	0/0 U	02/0 E	03/0 E
EUGLENOPHYTE	01/0 E	0,20 ?	0/04 ?
DIATOM	0,44 E	0,50 E	0,57 E
COMPOUND	05/0 E	09/0 E	08/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 26 75	07 14 75	11 03 75
GENUS	00	03	00
SPECIES	00	03	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 26 75	07 14 75	11 03 75
AVERAGE DIVERSITY	H	0,77	2,57	2,03
NUMBER OF TAXA	S	15,00	18,00	18,00
NUMBER OF SAMPLES COMPOSITED	M	3,00	3,00	3,00
MAXIMUM DIVERSITY	MAXH	3,91	4,17	4,17
MINIMUM DIVERSITY	MINH	0,54	0,10	0,52
TOTAL DIVERSITY	D	187,11	5279,01	639,45
TOTAL NUMBER OF INDIVIDUALS/ML	N	243,00	2093,00	315,00
EVENNESS COMPONENT	J	0,20	0,62	0,49
RELATIVE EVENNESS	RJ	0,07	0,61	0,42
MEAN NUMBER OF INDIVIDUALS/TAXA	L	16,20	116,28	17,50
NUMBER/ML OF MOST ABUNDANT TAXON	K	189,00	906,00	138,00

LAKE NAME: LAKE BRITTON
STORET NUMBER: 0603

CONTINUED

TAXA	FORM	03 26 75			07 14 75			11 03 75		
		IB	%C	ALGAL UNITS PER ML	IB	%C	ALGAL UNITS PER ML	IB	%C	ALGAL UNITS PER ML
ANABAENA #1	FIL				12	19.4	406			
ANABAENA #2	FIL				1	1.5	31			
ANKISTRODESMUS FALCATUM V. ACICULARIS	CEL									X
APHANIZOMENON FLOS-AQUAE	FIL						X			
ASTERIONELLA FORMOSA	CEL				18	4.5	94			
CENTRIC DIATOM	CEL	11	77.8	189						
CHAETOCEROS	CEL							12	13.4	39
CHROOMONAS ? ACUTA	CEL	12	22.2	54	1	6.0	125	5	13.4	39
COCCONEIS PLACENTULA	CEL			X						X
CRYPTOMONAS EROSA	CEL				1	1.5	31	14	6.3	20
CYMATOPLEURA SOLEA	CEL									X
DIATOMA VULGARE	CEL			X			X			
DICTYOSPHAERIUM PULCHELLUM	COL									X
EUDORINA ELEGANS	COL									X
EUGLENA	CEL			X						
FRAGILARIA CAPUCINA V. MESOLEPTA	CEL			X						
FRAGILARIA CROTONENSIS	CEL				14	6.0	125	11	43.9	138
FRAGILARIA INFLATA	CEL			X			X			
GOLENKINIA RADIATA	CEL				1	1.5	31			
GOMPHONEMA	CEL						X			
MELOSIRA #1	CEL			X	1	4.5	94			X
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL				13	43.3	906			X
MELOSIRA VARIANS	CEL			X			X			X
MERIDION CIRCULARE	CEL			X						
NAVICULA	CEL									X
NITZSCHIA #1	CEL			X						
NITZSCHIA #2	CEL									X
OOCYSTIS	CEL						X	13	29.1	79
OSCILLATORIA	FIL									X
PENNATE DIATOM #1	CEL									X
PENNATE DIATOM #2	CEL			X						
RHOICOSPHENIA CURVATA	CEL			X						
STEPHANODISCUS	CEL			X						
SYNEDRA ULNA	CEL			X	11	10.5	219			X
TRACHELOMONAS	CEL						X			
ULOTHRIX	FIL				1	1.5	31			
TOTAL				243			2093			315

LAKE NAME: CASITAS RES.
STORET NUMBER: 0604

NYGAARD TROPHIC STATE INDICES

DATE	03 07 75	06 24 75	11 13 75
MYXOPHYCEAN	0/0 O	01/0 E	02/0 E
CHLOROPHYCEAN	04/0 E	0/0 O	05/0 E
EUGLENOPHYTE	0/04 ?	0/01 ?	0/07 ?
DIATOM	0/0 ?	0/0 ?	2.00 E
COMPOUND	04/0 E	01/0 E	09/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 07 75	06 24 75	11 13 75
GENUS	06	00	08
SPECIES	03	00	03

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 07 75	06 24 75	11 13 75
AVERAGE DIVERSITY	H	1.46	0.24	2.35
NUMBER OF TAXA	S	6.00	6.00	15.00
NUMBER OF SAMPLES COMPOSITED	N	4.00	4.00	4.00
MAXIMUM DIVERSITY	MAXH	2.58	2.58	3.91
MINIMUM DIVERSITY	MINH	0.09	0.02	0.07
TOTAL DIVERSITY	D	870.16	743.52	6276.85
TOTAL NUMBER OF INDIVIDUALS/ML	N	596.00	3098.00	2671.00
EVENNESS COMPONENT	J	0.57	0.09	0.60
RELATIVE EVENNESS	RJ	0.56	0.09	0.60
MEAN NUMBER OF INDIVIDUALS/TAXA	L	99.33	516.33	178.07
NUMBER/ML OF MOST ABUNDANT TAXON	K	268.00	2973.00	1453.00

LAKE NAME: CASITAS RES.
STORET NUMBER: 0604

CONTINUED

TAXA	FORM	03 07 75			06 24 75			11 13 75		
		IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML
ANABAENA	FIL						X			
ANKISTRODESMUS FALCATUS	CEL	12	40.1	239				14	5.7	152
APHANIZOMENON FLOS-AQUAE	FIL									X
CERATIUM HIRUNDINELLA F. FURCOIDES	CEL						X			X
CHROOMONAS	CEL								8.6	229
CHROOMONAS ? ACUTA	CEL	11	45.0	268	12	4.0	125			
CRYPTOMONAS EROSA	CEL			X				12	5.7	152
CYCLOTELLA	CEL							131	54.4	1453
CYST	CEL									X
DINOBRYON DIVERGENS	CEL						X			
DINOBRYON SOCIALE	CEL						X			
DINOBRYON SPP.	CEL				11	96.0	2973			
FRAGILARIA INTERMEDIA ?	CEL									X
GOLENKINIA	CEL								1.4	38
LAGERHEINIA SUBSALSA	CEL								1.4	38
MELOSIRA DISTANS	CEL							11	11.4	305
OSCILLATORIA	FIL								1.4	38
PERIDINIUM QUADRIDENS	CEL							11	4.3	114
SCENEDESMUS BIJUGA	COL								4.3	114
SCENEDESMUS BIJUGA V. ALTERNANS	COL	13	14.9	89						
SPHAEROCYSTIS SCHROETERI	COL			X						
TETRAEDRON MINIMUN	CEL								1.4	38
TETRAEDRON MINIMUN V. SCROBICULATUM	CEL			X						
TOTAL				596			3098			3671

LAKE NAME: CROWLEY LAKE
STORET NUMBER: 0605

NYGAARD TROPHIC STATE INDICES

DATE	06 10 75	06 30 75	11 05 75
MYXOPHYCEAN	01/0 E	02/0 E	2,00 E
CHLOROPHYCEAN	01/0 E	01/0 E	0,50 ?
EUGLENOPHYTE	0/02 ?	0/03 ?	0/05 ?
DIATOM	0/04 ?	1,00 E	0,40 E
COMPOUND	02/0 E	06/0 E	3,50 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	06 10 75	06 30 75	11 05 75
GENUS	00	05	05
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		06 10 75	06 30 75	11 05 75
AVERAGE DIVERSITY	H	1,96	2,89	2,27
NUMBER OF TAXA	S	9,00	12,00	17,00
NUMBER OF SAMPLES COMPOSITED	M	2,00	3,00	3,00
MAXIMUM DIVERSITY	MAXH	3,17	3,58	4,09
MINIMUM DIVERSITY	MINH	0,04	0,04	0,17
TOTAL DIVERSITY	D	4443,32	11577,34	2483,38
TOTAL NUMBER OF INDIVIDUALS/ML	N	2267,00	4006,00	1094,00
EVENNESS COMPONENT	J	0,62	0,81	0,56
RELATIVE EVENNESS	RJ	0,62	0,81	0,54
MEAN NUMBER OF INDIVIDUALS/TAXA	L	251,89	333,83	64,35
NUMBER/ML OF MOST ABUNDANT TAXON	K	1049,00	892,00	421,00

LAKE NAME: CROWLEY LAKE
STORET NUMBER: 0605

CONTINUED

TAXA	FORM	06 10 75 IB	06 10 75 %C	06 10 75 ALGAL UNITS PER ML	06 30 75 IB	06 30 75 %C	06 30 75 ALGAL UNITS PER ML	11 05 75 IB	11 05 75 %C	11 05 75 ALGAL UNITS PER ML
ANABAENA	FIL			X	1	20.0	803			X
APHANIZOMENON FLOS-AQUAE	FIL				1	1.1	45	2	38.5	421
ASTERIONELLA FORMOSA	CEL	1	22.2	504	2	10.9	758			X
CHLAMYDOMONAS	CEL				1	3.3	134			
CHROOMONAS	CEL				3	22.3	892			
CHROOMONAS ? ACUTA	CEL	4	46.3	1049				5	15.4	168
COSMARIUM	CEL									X
CRYPTOMONAS	CEL	5	3.7	84	4	7.8	312		2.6	28
CYCLOTELLA	CEL				1	1.1	45			
DIATOMA	CEL						X			
DINOBRYON DIVERGENS	CEL	2	16.7	378						
ELAKATOTHRIX VIRIDIS	CEL			X						
ENTOMONEIS ORNATA	CEL									X
FRAGILARIA	CEL			X						
FRAGILARIA CROTONENSIS	CEL	3	11.1	252	1	6.4	258	3	20.6	225
GYROSIGMA ?	CEL									X
MELOSIRA	CEL									X
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL				1	3.3	134			
MICROCYSTIS INCERTA	COL									X
OSCILLATORIA	FIL							4	13.8	140
PEDIASTRUM BORYANUM	COL									X
PENNATE DIATOM	CEL									X
RHOPALODIA GIBBA	CEL									X
SCHROEDERIA SETIGERA	CEL				5	14.5	580			
STAURASTRUM	CEL									X
STEPHANODISCUS NIAGARAE	CEL				1	1.1	45	1	10.2	113
TABELLARIA FENESTRATA	CEL			X						
TOTAL				2267			4006			1094

LAKE NAME: DON PEDRO RES.
STORET NUMBER: 0606

NYGAARD TROPHIC STATE INDICES

DATE	03 11 75	06 25 75	11 12 75
MYXOPHYCEAN	0/0 O	2,00 E	02/0 E
CHLOROPHYCEAN	0/0 O	9,00 E	0/0 O
EUGLENOPHYTE	0/0 ?	0/11 ?	0,50 E
DIATOM	0,67 E	3,00 E	1,50 E
COMPOUND	02/0 E	17,0 E	06/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 11 75	06 25 75	11 12 75
GENUS	01	03	01
SPECIES	00	03	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 11 75	06 25 75	11 12 75
AVERAGE DIVERSITY	H	1,02	1,56	2,14
NUMBER OF TAXA	S	7,00	28,00	14,00
NUMBER OF SAMPLES COMPOSITED	M	5,00	5,00	5,00
MAXIMUM DIVERSITY	MAXH	2,81	4,81	3,81
MINIMUM DIVERSITY	MINH	0,04	0,12	0,36
TOTAL DIVERSITY	D	2142,00	4747,08	772,54
TOTAL NUMBER OF INDIVIDUALS/ML	N	2100,00	3043,00	361,00
EVENNESS COMPONENT	J	0,36	0,32	0,56
RELATIVE EVENNESS	RJ	0,36	0,31	0,52
MEAN NUMBER OF INDIVIDUALS/TAXA	L	300,00	108,68	25,79
NUMBER/ML OF MOST ABUNDANT TAXON	K	1543,00	2260,00	171,00

LAKE NAME: DON PEDRO RES,
STORET NUMBER: 0606

CONTINUED

TAXA	FORM	03 11 75			06 25 75			11 13 75		
		IB	%C	ALGAL UNITS PER ML	IB	%C	ALGAL UNITS PER ML	IB	%C	ALGAL UNITS PER ML
ANABAENA #1	FIL				14	2.3	69			
ANABAENA #2	FIL						X			X
ANKISTRODESMUS FALCATUS	CEL					3.0	92			
ASTERIONELLA FORMOSA	CEL			X		3.0	92			X
ATTHEYA ZACHARIASI	CEL						X			
CENTRIC DIATOMS	CEL				19	4.5	138			
CERATIUM HIRUNDINELLA	CEL				11	2.3	69			
CERATIUM HIRUNDINELLA F. FURCOIDES	CEL				13	0.0	23			
CHLAMYDOMONAS DINOBRYONII	CEL						X			
CHROOMONAS ? ACUTA	CEL	11	73.5	1543		7.6	231	13	47.4	171
COELASTRUM SPHAERICUM	COL						X			
CRUCIGENIA TETRAPEDIA	COL						X			
CRYPTOMONAS	CEL	2	5.1	107		0.0	23	1	10.9	38
CYCLOTELLA STELLIGERA	CEL						X			
DINOBRYON BAVARICUM	CEL						X			
DINOBRYON DIVERGENS	CEL						X			X
EPITHEMIA	CEL									
FRAGILARIA CROTONENSIS	CEL			X						
GLENODINIUM	CEL						X	1	5.3	19
GLOEOCYSTIS PLANCTONICA	COL						X			X
MELOSIRA DISTANS	CEL	13	21.4	450	12	74.3	2260			X
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL							2	15.0	57
MELOSIRA GRANULATA V. ANGUSTISSIMA F. SPIRALIS	CEL			X			X	1	15.0	57
MICROCYSTIS INCERTA	COL									X
NOUGEOTIA	FIL									X
OOCYSTIS	CEL						X			
PEDIASTRUM TETRAS V. TETRAODON	COL						X			
PERIDINIUM	CEL							1	5.3	19
SCENEDESMUS BIJUGA	COL						X			
SPHAEROCYSTIS SCHROETERI	COL					1.5	46			
STAURASTRUM	CEL						X			
STEPHANODIACUS	CEL						X			
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL						X			
TRACHELOMONAS VOLVOCINA	CEL									X
TREUBARIA SETIGERUM	CEL						X			
TOTAL				2100			3043			361

LAKE NAME: LAKE ELSINORE
STORET NUMBER: 0607

NYGAARD TROPHIC STATE INDICES

DATE	03 10 75	06 23 75	11 13 75
MYXOPHYCEAN	0/01 D	4,00 E	05/0 E
CHLOROPHYCEAN	4,00 E	3,00 E	09/0 E
EUGLENOPHYTE	0,25 E	0,14 ?	0,07 ?
DIATOM	01/0 E	0,20 ?	0,33 E
COMPOUND	6,00 E	9,00 E	16/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 10 75	06 23 75	11 13 75
GENUS	13	17	10
SPECIES	05	05	09

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 10 75	06 23 75	11 13 75
AVERAGE DIVERSITY	H	1,15	1,86	1,94
NUMBER OF TAXA	S	12,00	18,00	20,00
NUMBER OF SAMPLES COMPOSITED	M	6,00	6,00	6,00
MAXIMUM DIVERSITY	MAXH	3,58	4,17	4,32
MINIMUM DIVERSITY	MINH	0,00	0,01	0,00
TOTAL DIVERSITY	D	160350,25	35823,60	274537,16
TOTAL NUMBER OF INDIVIDUALS/ML	N	139435,00	19260,00	141514,00
EVENNESS COMPONENT	J	0,32	0,45	0,45
RELATIVE EVENNESS	RJ	0,33	0,45	0,45
MEAN NUMBER OF INDIVIDUALS/TAXA	L	11619,58	1070,00	7075,70
NUMBER/ML OF MOST ABUNDANT TAXON	K	98993,00	10045,00	79650,00

LAKE NAME: LAKE ELSINORE
STORET NUMBER: 0607

CONTINUED

TAXA	FORM	03 10 75			06 23 75			11 13 75		
		IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML
ANABAENOPSIS CIRCULARIS	FIL				11	37,4	5281	12	2,3	3190
ANKISTRODESMUS ?	CEL									X
ANKISTRODESMUS FALCATUS	CEL	12	24,4	34004	13	12,9	2485		8,9	12663
CHLAMYDOMONAS #1	CEL	11	71,0	98993	12	92,2	10065			
CHLAMYDOMONAS #2	CEL		0,6	805						
CHLOROCOCCALEAN CELL	CEL							15	10,0	25519
CHLOROGONIUM	CEL		0,6	805		0,3	52			
CHLOROPHYTAN LOBATE CELL	CEL							13	56,3	79650
CLOSTERIUM	CEL	1	0,1	201		1,1	207			
COCCONEIS	CEL						X			
CRYPTOMONAS EROSA	CEL	1	1,6	2213			X			
CYCLOTELLA MENEGHINIANA	CEL	1	1,6	2213	1	2,1	414		0,8	1063
CYLINDROTHECA GRACILIS	CEL						X			X
CYMBELLA	CEL					0,3	52			
EUGLENA	CEL		0,1	201		0,3	52			X
GLENODINIUM EDAX	CEL			X						
GLOEOCAPSA	COL						X			
LAGERHEIMIA CILIATA V. MINOR	CEL								0,1	193
LAGERHEIMIA QUADRISETA	CEL									X
MERISMOPEDIA MINIMA	COL									X
MICROCYSTIS INCERTA	COL						X			X
NITZSCHIA	CEL					0,8	155			
NITZSCHIA LONGISSIMA V. REVERSA	CEL				1	0,8	155	1	0,1	11406
OOCYSTIS	CEL			X						X
OSCILLATORIA #1	FIL					1,9	362			X
OSCILLATORIA #2	FIL									X
PENNATE DIATOM #1	CEL							1	5,8	7733
SCENEDESMUS	COL									X
SCENEDESMUS BIJUGA	COL			X			X			
SCENEDESMUS QUADRICAUDA	COL			X			X		0,1	97
TETRASTRUM GLABRUM	COL									X
TOTAL				139435			19360			141914

LAKE NAME: FALLEN LEAF LAKE
STORET NUMBER: 0608

NYGAARD TROPHIC STATE INDICES

DATE	03 18 75	07 02 75	11 05 75
MYXOPHYCEAN	0/0 O	0/0 O	0/0 O
CHLOROPHYCEAN	0/0 O	01/0 E	0/0 O
EUGLENOPHYTE	0/0 ?	0/01 ?	0/0 ?
DIATOM	1,00 E	1,00 E	0,50 E
COMPOUND	03/0 E	02/0 E	01/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 18 75	07 02 75	11 05 75
GENUS	09	00	00
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 18 75	07 02 75	11 05 75
AVERAGE DIVERSITY	H	2,63	1,50	0,92
NUMBER OF TAXA	S	10,00	4,00	9,00
NUMBER OF SAMPLES COMPOSITED	M	5,00	4,00	5,00
MAXIMUM DIVERSITY	MAXH	3,32	2,00	3,17
MINIMUM DIVERSITY	MINH	0,12	0,50	0,91
TOTAL DIVERSITY	D	2219,72	60,00	58,88
TOTAL NUMBER OF INDIVIDUALS/ML	N	844,00	40,00	64,00
EVENNESS COMPONENT	J	0,79	0,75	0,29
RELATIVE EVENNESS	RJ	0,79	0,67	0,01
MEAN NUMBER OF INDIVIDUALS/TAXA	L	84,40	10,00	7,11
NUMBER/ML OF MOST ABUNDANT TAXON	K	205,00	20,00	43,00

LAKE NAME: FALLEN LEAF LAKE
STORET NUMBER: 0608

CONTINUED

TAXA	FORM	03 18 75 IS	03 18 75 %C	03 18 75 ALGAL UNITS PER ML	07 02 75 IS	07 02 75 %C	07 02 75 ALGAL UNITS PER ML	11 05 75 IS	11 05 75 %C	11 05 75 ALGAL UNITS PER ML
CERATIUM HIRUNDINELLA	CEL									X
CHLAMYDOMONAS	CEL	18	10,8	91						
CHROOMONAS	CEL							12	67,2	43
COCCONEIS PLACENTULA	CEL									X
CRYPTOMONAS EROSA	CEL	11	24,3	205						
CYCLOTELLA	CEL	14	13,5	114	12	25,0	10			X
CYCLOTELLA STELLIGERA	CEL			X						
DINOBRYON	CEL				13	25,0	10			
DINOBRYON SOCIALE	CEL	13	19,0	160						
DINOFLAGELLATE CYST	CEL							11	32,8	21
FRAGILARIA CROTONENSIS	CEL									X
GLENODINIUM ?	CEL									X
GYMNODINIUM	CEL									X
GYMNODINIUM ORDINATUM	CEL	1	2,7	23						
MELOSIRA ITALICA	CEL	1	10,8	91						
NAVICULA	CEL			X						
NITZSCHIA	CEL	12	19,0	160						
OOCYSTIS	CEL						X			
PERIDINIUM INCONSPICUUM	CEL									X
RHOPALODIA GIBBA	CEL			X						
SYNEDRA	CEL				11	50,0	20			
TOTAL				844			40			64

LAKE NAME: LAKE HENNESSEY
STORET NUMBER: 0609

NYGAARD TROPHIC STATE INDICES

DATE	03 13 75	06 26 75	11 12 75
MYXOPHYCEAN	01/0 E	1.00 E	2.00 E
CHLOROPHYCEAN	06/0 E	6.00 E	4.00 E
EUGLENOPHYTE	0/07 ?	0/07 ?	0/06 ?
DIATOM	2.50 E	1.00 E	0.50 E
COMPOUND	12/0 E	10.0 E	9.00 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 13 75	06 26 75	11 12 75
GENUS	00	03	01
SPECIES	00	03	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 13 75	06 26 75	11 12 75
AVERAGE DIVERSITY	H	0.82	2.66	1.78
NUMBER OF TAXA	S	17.00	20.00	19.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	4.09	4.32	4.25
MINIMUM DIVERSITY	MINH	0.09	0.10	0.41
TOTAL DIVERSITY	D	1831.06	6689.90	797.44
TOTAL NUMBER OF INDIVIDUALS/ML	N	2233.00	2515.00	448.00
EVENNESS COMPONENT	J	0.20	0.62	0.42
RELATIVE EVENNESS	RJ	0.19	0.61	0.36
MEAN NUMBER OF INDIVIDUALS/TAXA	L	131.35	125.75	23.58
NUMBER/ML OF MOST ABUNDANT TAXON	K	1951.00	780.00	262.00

LAKE NAME: LAKE MENNEBSEC
STORET NUMBER: 0609

CONTINUED

TAXA	FORM	03 13 75			06 24 75			11 12 75		
		1B	%C	ALGAL UNITS PER ML	1B	%C	ALGAL UNITS PER ML	1B	%C	ALGAL UNITS PER ML
ANABAENA	FIL									X
ANKISTRODESMUS FALCATUS	CEL			X		2.0	50	1	8.3	37
APHANIZOMENON FLOS-AQUAE	FIL			X	11	26.0	654	2	16.7	75
ASTERIONELLA FORMOSA	CEL	2	4.7	105		2.0	50			X
ATTHEYA ZACHARIASI	CEL						X			
CERATIUM HIRUNDINELLA	CEL						X			
CERATIUM HIRUNDINELLA F. FURCOIDES	CEL						X			
CHROOMONAS	CEL	11	97.4	1951						
CHROOMONAS ? ACUTA	CEL	1	3.9	88	14	20.0	503	1	8.3	37
CLOSTERIUM	CEL							11	58.5	262
COELASTRUM MICROPORUM	COL			X						
COELASTRUM RETICULATUM	COL				1	4.0	101			
CRUCIGENIA TETRAPEDIA	COL			X		2.0	50			
CRYPTOMONAS	CEL	1	0.8	18				1	8.3	37
CYCLOTELLA MENEGHINIANA	CEL			X						
DINOBRYON SOCIALE	CEL									X
EPITHEMIA	CEL									X
FLAGELLATE	CEL				1	2.0	50			
FRAGILARIA CROTONENSIS	CEL						X			X
GLENODINIUM EDAX	CEL						X			
GLOEOCYSTIS	COL				12	31.0	780			
GOMPHONEMA TRUNCATUM	CEL									X
GYROSIGMA	CEL									X
MELOSIRA DISTANS	CEL			X		6.0	151			X
MELOSIRA GRANULATA	CEL			X						X
MELOSIRA VARIANS	CEL			X						
OOCYSTIS	CEL					3.0	76			X
PEDIASTRUM TETRAS V. TETRAODON	COL			X		1.0	25			
RHOPALODIA GIBBA	CEL						X			X
SCENEDESMUS BIJUGA	COL			X			X			
SCENEDESMUS INTERMEDIUS V. BICAUDATUS	COL									X
STAURASTRUM	CEL						X			
STEPHANODISCUS	CEL	1	1.6	35		1.0	25			X
SYNEDRA	CEL		0.8	18						X
TETRAEDRON CONSTRICTUM	CEL									
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL		0.8	18						
TOTAL				2233			2815			449

LAKE NAME: LAKE HENSHAW
STORET NUMBER: 0610

NYGAARD TROPHIC STATE INDICES

DATE	03 07 75	06 23 75	11 13 75
MYXOPHYCEAN	0/02 O	1,50 E	1,00 E
CHLOROPHYCEAN	3,00 E	2,25 E	2,25 E
EUGLENOPHYTE	0/06 ?	0,13 ?	0,23 E
DIATON	0,57 E	1,00 E	0,31 E
COMPOUND	5,00 E	5,00 E	5,00 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 07 75	06 23 75	11 13 75
GENUS	05	03	11
SPECIES	05	03	03

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 07 75	06 23 75	11 13 75
AVERAGE DIVERSITY	H	1,08	2,98	3,02
NUMBER OF TAXA	S	22,00	31,00	39,00
NUMBER OF SAMPLES COMPOSITED	M	2,00	2,00	2,00
MAXIMUM DIVERSITY	MAXH	4,46	4,95	5,29
MINIMUM DIVERSITY	MINH	0,03	0,12	0,20
TOTAL DIVERSITY	D	9958,69	9729,70	7112,10
TOTAL NUMBER OF INDIVIDUALS/ML	N	9221,00	3265,00	2355,00
EVENNESS COMPONENT	J	0,24	0,60	0,57
RELATIVE EVENNESS	RJ	0,24	0,60	0,56
MEAN NUMBER OF INDIVIDUALS/TAXA	L	419,14	105,32	60,38
NUMBER/ML OF MOST ABUNDANT TAXON	K	7701,00	987,00	681,00

LAKE NAME: LAKE HENSHAW
STORET NUMBER: 0610

CONTINUED

TAXA	FORM	03 07 75			06 23 75			11 13 75		
		I8	%C	ALGAL UNITS PER ML	I8	%C	ALGAL UNITS PER ML	I8	%C	ALGAL UNITS PER ML
ANABAENA	FIL				1	1.3	43			X
ANABAENOPSIS CIRCULARIS	FIL						X			
ANKISTRODESMUS FALCATUS	CEL	1	3.0	277	14	25.0	816	13	13.3	314
APHANIZOMENON FLOS-AQUAE	FIL									X
CERATIUM HIRUNDINELLA V. FURCOIDES	CEL						X			
CHROOMONAS ? ACUTA	CEL	13	6.0	553	1	7.9	258	1	15.6	367
CLOSTERIUM #1	CEL						X			X
CLOSTERIUM #2	CEL						X			
CLOSTERIUM #3	CEL									X
CLOSTERIUM #4	CEL			X						
COCCONEIS PLACENTULA	CEL			X			X	1	2.2	52
COELASTRUM	COL						X			
COELASTRUM MICROPORUM	COL									X
CRYPTOMONAS	CEL									X
CRYPTOMONAS EROSA	CEL	12	2.0	184	1	2.6	86			
CYCLOTELLA MENEGHINIANA	CEL			X			X			X
CYMATOPLEURA SOLEA	CEL						X			
DIPLONEIS	CEL			X	1	2.6	86	1	2.2	52
ELAKATOTHRIX GELATINOSA	CEL						X			
ELAKATOTHRIX VIRIDIS	CEL									X
EPITHEMIA	CEL									X
EUGLENA	CEL									X
GLENODINIUM GYMNODINIUM	CEL				11	7.9	258			
GOMPHONEMA	CEL									X
GOMPHONEMA TRUNCATUM	CEL									X
KIRCHNERIELLA CONTORTA	COL				1	6.6	215			X
MALLOMONAS	CEL	11	83.5	7701						
MELOSIRA #1	CEL							1	8.9	289
MELOSIRA GRANULATA	CEL	1	1.0	92			X			X
MELOSIRA VARIANS	CEL	15	1.0	92						
MERISMOPEDIA MINIMA	COL				1	5.3	172			
MICROCYSTIS AERUGINOSA	COL						X			X
MICROCYSTIS INCERTA	COL				12	30.2	987			
NAVICULA #1	CEL							1	2.2	52
NAVICULA #2	CEL									X
NAVICULA #3	CEL			X						
NITZSCHIA	CEL									X
NITZSCHIA VERMICULARIS	CEL									X
OOCYSTIS	CEL	1	2.0	184			X	1	8.9	289
OSCILLATORIA	FIL				1	1.3	43	12	26.9	681
PEDIASTRUM BORYANUM	COL			X			X			X
PEDIASTRUM DUPLEX V. RETICULATUM	COL			X				11	8.9	289
PEDIASTRUM SIMPLEX V. DUODENARIUM	COL			X			X			X
PHACUS HELIKOIDES	CEL						X			X
PINNULARIA	CEL									X
PLEUROSIGMA	CEL			X						X
RHOPALODIA GIBBA	CEL									X
SCHROEDERIA SETIGERA	CEL				1	2.6	86			X
SPHAEROCYSTIS SCHROETERI	COL				13	4.0	129			
STAURASTRUM #1	CEL						X			X
STAURASTRUM #2	CEL			X			X			X
STEPHANODISCUS	CEL	14	0.5	46	15	2.6	86	13	4.5	105
SURIRELLA	CEL									X
SURIRELLA OVATA	CEL			X						
SYNEDRA	CEL	1	1.0	92						
SYNEDRA ACUS	CEL			X						
TETRAEDRON TRIGONUM V. GRACILE	CEL			X						
TRACHELOMONAS	CEL							14	4.5	105
TRACHELOMONAS VOLVOCINA	CEL						X			
TOTAL				9221			3265			2385

LAKE NAME: IRON GATE RES.
STORET NUMBER: 0611

NYGAARD TROPHIC STATE INDICES

DATE	03 27 75	07 16 75	10 31 75
MYXOPHYCEAN	0/0 D	MYX=	03/0 E
CHLOROPHYCEAN	01/0 E	CHL=	0/0 D
EUGLENOPHYTE	1,00 E	EUG=	0/03 ?
DIATOM	0,12 ?	DIA=	3,00 E
COMPOUND	03/0 E	CMPD=	06/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 27 75	07 16 75	10 31 75
GENUS	05	03	05
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 27 75	07 16 75	10 31 75
AVERAGE DIVERSITY	H	1,59	1,67	2,14
NUMBER OF TAXA	S	14,00	8,00	9,00
NUMBER OF SAMPLES COMPOSITED	M	2,00	2,00	2,00
MAXIMUM DIVERSITY	MAXH	3,81	3,00	3,17
MINIMUM DIVERSITY	MINH	0,05	0,11	0,23
TOTAL DIVERSITY	D	5892,54	1152,30	740,44
TOTAL NUMBER OF INDIVIDUALS/ML	N	3706,00	690,00	346,00
EVENNESS COMPONENT	J	0,42	0,56	0,68
RELATIVE EVENNESS	RJ	0,41	0,54	0,65
MEAN NUMBER OF INDIVIDUALS/TAXA	L	264,71	86,25	38,44
NUMBER/ML OF MOST ABUNDANT TAXON	K	1976,00	435,00	133,00

LAKE NAME: IRON GATE RES.
STORET NUMBER: 0611

CONTINUED

TAXA	FORM	03 27 75			07 16 75			10 31 75		
		IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML
ANABAENA	FIL						X			
APHANIZOMENON FLOS-AQUAE	FIL				12	5.2	36	11	15.3	53
ASTERIONELLA FORMOSA	CEL			X						
CHROOMONAS ? ACUTA	CEL	13	6.7	247				15	7.8	27
CRYPTOMONAS EROSA	CEL	11	53.3	1976	14	10.9	73	13	23.1	80
EUGLENA	CEL		1.7	62						
FRAGILARIA	CEL						X			
FRAGILARIA CONSTRUENS	CEL			X						
FRAGILARIA LEPTOSTAURON	CEL			X						
GLENODINIUM FDAX	CEL	14	0.8	31						
NANTZSCHIA	CEL			X						
MELOSIRA GRANULATA V. ANGUSTISSIMA	CEL				15	10.6	73			X
OSCILLATORIA #1	FIL									X
OSCILLATORIA #2	FIL							12	38.4	133
PENNATE DIATOM #1	CEL	15	1.7	62						
RHOICOSPHENIA CURVATA	CEL			X						
SCENEDESMUS ACUMINATUS	COL			X						
SCHROEDERIA SETIGERA	CEL				13	63.0	435			
STEPHANODISCUS	CEL	12	35.0	1297			X	14	15.3	53
STEPHANODISCUS ABIRAEA V. MINUTULA	CEL									X
SURIRELLA OVATA	CEL			X						X
SYNEDRA #1	CEL		0.8	31						
SYNEDRA CYCLOPUM	CEL				11	10.6	73			
TOTAL				3706			690			346

LAKE NAME: LOWER KLAMATH LAKE
STORET NUMBER: 0613

NYGAARD TROPHIC STATE INDICES

	DATE 06 03 75
MYXOPHYCEAN	1.50 E
CHLOROPHYCEAN	5.00 E
EUGLENOPHYTE	0/13 ?
DIATOM	0.16 ?
COMPOUND	8.00 E

PALMER'S ORGANIC POLLUTION INDICES

	DATE 06 03 75
GENUS	06
SPECIES	04

SPECIES DIVERSITY AND ABUNDANCE INDICES

		DATE 06 03 75
AVERAGE DIVERSITY	H	2.06
NUMBER OF TAXA	S	39.00
NUMBER OF SAMPLES COMPOSITED	M	1.00
MAXIMUM DIVERSITY	MAXH	5.29
MINIMUM DIVERSITY	MINH	0.27
TOTAL DIVERSITY	D	3464.92
TOTAL NUMBER OF INDIVIDUALS/ML	N	1682.00
EVENNESS COMPONENT	J	0.39
RELATIVE EVENNESS	RJ	0.36
MEAN NUMBER OF INDIVIDUALS/TAXA	L	43.13
NUMBER/ML OF MOST ABUNDANT TAXON	K	1029.00

LAKE NAME: LOWER KLAMATH LAKE CONTINUED
STORET NUMBER: 0613

06 03 75

TAXA	FORM	%	%	ALGAL UNITS PER ML
ACHNANTHES	CEL	14	3.7	62
ANABAENA	FIL	1	1.8	31
ANKISTRODESMUS FALCATUS	CEL			X
ANKISTRODESMUS FALCATUS V. MIRABILIS	CEL			X
ANOMOEONEIS COSTATA	CEL			X
APHANOCAPSA ELACHISTA	COL			X
CALONEIS	CEL			X
CHLOROPHYTAN COCCOID CELL	CEL		3.7	62
CLOSTERIUM	CEL			X
COSMARIUM	CEL			X
CYCLOTELLA BODANICA V. STELLA	CEL			X
CYCLOTELLA MENEGHINIANA	CEL			X
CYMBELLA	CEL			X
CYMBELLA MEXICANA	CEL			X
CYMBELLA MINUTA	CEL			X
EPITHEMIA TURGIDA	CEL			X
GOMPHONEMA PARVULUM	CEL	11	61.2	1029
NANTZSCHIA AMPHIOXYS F. CAPITATA	CEL			X
MELOSIRA ITALICA	CEL			X
NAVICULA CUSPIDATA	CEL			X
NAVICULA TRIPUNCTATA V. SCHIZONEMOIDES	CEL			X
NITZSCHIA	CEL	13	11.1	187
NITZSCHIA TRYBLIONELLA	CEL			X
OOCYSTIS	COL	1	1.8	31
OSCILLATORIA	FIL			X
PEDIASTRUM BORYANUM	COL	15	1.8	31
PEDIASTRUM DUPLEX V. CLATHRATUM	COL			X
PINNULARIA	CEL			X
RHOPALODIA GIBBA	CEL			X
SCENEDESMUS ACUMINATUS	COL			X
SCENEDESMUS ACUTUS	COL			X
SCENEDESMUS DIMORPHUS	COL			X
SCENEDESMUS QUADRICAUDA	COL	1	1.8	31
SCHROEDERIA SETIGERA	CEL			X
SURIRELLA ANGUSTATA	CEL			X
SURIRELLA OVATA	CEL			X
SURIRELLA TENERA	CEL			X
SYNEDRA ULNA	CEL	12	9.3	156
ULOTHRIX	FIL	1	3.7	62
TOTAL				1692

LAKE NAME: LOPEZ LAKE
STORET NUMBER: 0614

NYGAARD TROPHIC STATE INDICES

DATE	03 10 75	06 25 75	11 12 75
MYXOPHYCEAN	01/0 E	1,00 E	2,00 E
CHLOROPHYCEAN	0/0 O	3,00 E	1,50 E
EUGLENOPHYTE	2,00 E	0/04 ?	0/07 ?
DIATOM	0,50 E	1,00 E	01/0 E
COMPOUND	04/0 E	6,00 E	4,00 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 10 75	06 25 75	11 12 75
GENUS	00	00	00
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 10 75	06 25 75	11 12 75
AVERAGE DIVERSITY	H	1,53	2,30	2,30
NUMBER OF TAXA	S	9,00	13,00	13,00
NUMBER OF SAMPLES COMPOSITED	N	4,00	4,00	4,00
MAXIMUM DIVERSITY	MAXH	3,17	3,70	3,70
MINIMUM DIVERSITY	MINH	0,11	0,16	0,22
TOTAL DIVERSITY	D	1245,42	1989,50	1315,60
TOTAL NUMBER OF INDIVIDUALS/ML	N	814,00	865,00	572,00
EVENNESS COMPONENT	J	0,48	0,62	0,62
RELATIVE EVENNESS	RJ	0,47	0,61	0,60
MEAN NUMBER OF INDIVIDUALS/TAXA	L	90,44	66,54	44,00
NUMBER/ML OF MOST ABUNDANT TAXON	K	534,00	298,00	191,00

LAKE NAME: LOPEZ LAKE
STORET NUMBER: 0614

CONTINUED

TAXA	FORM	03 10 75 IS	03 10 75 %C	03 10 75 ALGAL UNITS PER ML	06 25 75 IS	06 25 75 %C	06 25 75 ALGAL UNITS PER ML	11 12 75 IS	11 12 75 %C	11 12 75 ALGAL UNITS PER ML
ANABAENA	FIL									X
ANKISTRODESMUS FALCATUS	CEL						X			
APHANIZOMENON FLOS-AQUAE	FIL			X	11	28,0	216	12	22,2	127
ASTERIONELLA FORMOSA	CEL						X			
CERATIUM HIRUNDINELLA	CEL	11	65,6	534			X	1	11,2	64
CHROOMONAS ? ACUTA	CEL				14	34,8	298	5	33,4	191
CLOSTERIUM	CEL									X
COCCONEIS	CEL			X						
CRYPTOMONAS	CEL				15	6,2	54			
CRYPTOMONAS EROSA	CEL	4	6,9	56				3	22,2	127
DINOFLAGELLATE CYST	CEL			X						
EUGLENA	CEL	15	3,4	28						
FLAGELLATE	CEL						X			
FRAGILARIA CROTONENSIS	CEL	13	17,2	140	13	9,4	81			
MELOSIRA	CEL						X			
MICROCYSTIS AERUGINOSA	COL									X
OOCYSTIS	CEL						X		7,3	42
PHORMIDIUM MUCICOLA	FIL									X
SCENEDESMUS INTERMEDIUS V. BICAUDATUS	COL									X
SCHROEDERIA SETIGERA	CEL					18,7	162			X
STAURASTRUM	CEL						X			X
STEPHANODISCUS NIAGARAE	CEL	12	6,9	56	12	6,2	54	4	3,7	21
TRACHELOMONAS	CEL			X						
TOTAL				814			868			572

LAKE NAME: LAKE MARY
STORET NUMBER: 0615

NYGAARD TROPHIC STATE INDICES

DATE	06 30 75	11 05 75
MYXOPHYCEAN	0/0 O	0/0 O
CHLOROPHYCEAN	01/0 E	0/0 O
EUGLENOPHYTE	0/01 ?	0/0 ?
DIATOM	0,50 E	0,11 ?
COMPOUND	02/0 E	01/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	06 30 75	11 05 75
GENUS	02	00
SPECIES	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		06 30 75	11 05 75
AVERAGE DIVERSITY	H	1,79	2,00
NUMBER OF TAXA	S	8,00	13,00
NUMBER OF SAMPLES COMPOSITED	M	1,00	1,00
MAXIMUM DIVERSITY	MAXH	3,00	3,70
MINIMUM DIVERSITY	MINH	0,07	0,24
TOTAL DIVERSITY	D	2253,61	1026,00
TOTAL NUMBER OF INDIVIDUALS/ML	N	1259,00	513,00
EVENNESS COMPONENT	J	0,60	0,54
RELATIVE EVENNESS	RJ	0,59	0,51
MEAN NUMBER OF INDIVIDUALS/TAXA	L	157,38	39,46
NUMBER/ML OF MOST ABUNDANT TAXON	K	568,00	215,00

LAKE NAME: LAKE MAPI
STORET NUMBER: 0615

CONTINUED

TAXA	FORM	06 30 75			11 05 75		
		IB	%C	ALGAL UNITS PER ML	IB	%C	ALGAL UNITS PER ML
ASTERIONELLA FORMOSA	CEL	12	30,7	487	11	41,9	215
CHROOMONAS ?	CEL	1	3,3	41	1	16,2	83
CRYPTOMONAS EROSA	CEL	1	6,4	81	1	12,9	66
CYMBELLA	CEL						X
DINOBRYON CYLINDRICUM	CEL	1	3,3	41			
DINOBRYON DIVERGENS	CEL				1	25,7	132
EPITHEMIA SOREX	CEL						X
FRAGILARIA	CEL						X
GYROSIGMA	CEL						X
MELOSIRA ITALICA	CEL			X			X
NITZSCHIA LONGISSIMA V. REVERSA	CEL						X
PERIDINIUM	CEL			X			
SYNEDRA	CEL	11	45,1	568	1	3,3	17
SYNEDRA ULNA	CEL						X
TABELLARIA FENESTRATA	CEL						X
TETRAEDRON MINIMUM	CEL	1	3,3	41			
TOTAL				1259			513

LAKE NAME: LAKE MENDOCINO
STORET NUMBER: 0616

NYGAARD TROPHIC STATE INDICES

DATE	03 12 75	06 26 75	11 11 75
MYXOPHYCEAN	01/0 E	03/0 E	03/0 E
CHLOROPHYCEAN	0/0 D	04/0 E	04/0 E
EUGLENOPHYTE	0/01 ?	0/07 ?	0,14 ?
DIATOM	2,00 E	0,25 ?	1,00 E
COMPOUND	03/0 E	08/0 E	13/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 12 75	06 26 75	11 11 75
GENUS	01	02	08
SPECIES	00	03	03

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 12 75	06 26 75	11 11 75
AVERAGE DIVERSITY	H	0,62	0,61	1,94
NUMBER OF TAXA	S	8,00	18,00	24,00
NUMBER OF SAMPLES COMPOSITED	M	2,00	2,00	3,00
MAXIMUM DIVERSITY	MAXH	3,00	4,17	4,58
MINIMUM DIVERSITY	MINH	0,19	0,15	0,16
TOTAL DIVERSITY	D	229,40	802,76	3486,18
TOTAL NUMBER OF INDIVIDUALS/ML	N	370,00	1316,00	1797,00
EVENNESS COMPONENT	J	0,21	0,15	0,42
RELATIVE EVENNESS	RJ	0,16	0,12	0,41
MEAN NUMBER OF INDIVIDUALS/TAXA	L	46,25	73,11	74,88
NUMBER/ML OF MOST ABUNDANT TAXON	K	313,00	1198,00	1101,00

LAKE NAME: LAKE MENDOCINO
STORET NUMBER: 0616

CONTINUED

TAXA	FORM	03 12 75			06 26 75			11 11 75		
		IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML
ACHNANTHES MICROCEPHALA	CEL									X
ANABAENA	FIL			X			X			X
ANABAENOPSIS ELENKINII	FIL									X
ANKISTRODESMUS FALCATUS V. ACICULARIS	CEL				41	4.9	64		3.6	65
APHANIZOMENON FLOS-AQUAE	FIL						X			
CERATIUM HIRUNDINELLA	CEL			X			X			
CERATIUM HIRUNDINELLA F. BRACHYCERAS	CEL									X
CHROOMONAS ?	CEL	12	15.4	57	11	90.3	1189	11	61.3	1101
COELOSPHAERIUM ?	COL						X			
CRYPTOMONAS EROSA	CPL			X	31	2.4	32	12	10.8	194
CRYPTOMONAS MARSSONII	CEL				21	2.4	32			
CYMBELLA	CEL									X
EUGLENA	CEL									X
FRAGILARIA	CEL						X			
FRAGILARIA CROTONENSIS	CEL						X			
GLENODINIUM OCULATUM	CEL			X						X
GYROSIGMA	CEL									X
MELOSIRA DISTANS	CEL	11	84.6	313					1.8	32
MELOSIRA GRANULATA	CEL									X
MELOSIRA ITALICA	CEL						X	31	2.7	49
MELOSIRA VARIANS	CEL									X
NITZSCHIA	CEL			X						X
OOCYSTIS	CEL						X			
OSCILLATORIA LIMNETICA	FIL							14	12.6	227
PANDORINA MORUM	COL						X			
PERIDINIUM	CEL						X			
PERIDINIUM PENARDIFORME	CEL									X
PERIDINIUM QUADRIDENS	CEL								0.9	16
RHOPALODIA GIBBA	CEL						X			
SCENEDESMUS	COL									X
SCHROEDERIA SETIGERA	CEL						X			X
SPHAEROCYSTIS SCHROETERI	COL						X			
STEPHANODISCUS	CEL			X				51	4.5	81
SYNEDRA	CEL						X			
SYNEDRA DELICATISSIMA V. ANGUSTISSIMA	CEL									X
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL								1.8	33
TOTAL				370			1316			1797

LAKE NAME: NICASIO RES.
STORET NUMBER: 0617

NYGAARD TROPHIC STATE INDICES

DATE	03 13 75	06 26 75	11 11 75
MYXOPHYCEAN	02/0 E	4.00 E	1.00 E
CHLOROPHYCEAN	0/0 D	14.0 E	3.00 E
EUGLENOPHYTE	1.00 E	0.11 ?	0.62 E
DIATOM	04/0 E	2.50 E	1.50 E
COMPOUND	08/0 E	25.0 E	8.00 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 13 75	06 26 75	11 11 75
GENUS	00	02	01
SPECIES	00	02	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 13 75	06 26 75	11 11 75
AVERAGE DIVERSITY	H	1.40	1.66	2.59
NUMBER OF TAXA	S	12.00	30.00	22.00
NUMBER OF SAMPLES COMPOSITED	M	3.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	3.58	4.91	4.46
MINIMUM DIVERSITY	MINH	0.18	0.10	0.29
TOTAL DIVERSITY	D	949.20	6766.16	2051.28
TOTAL NUMBER OF INDIVIDUALS/ML	N	678.00	4076.00	792.00
EVENNESS COMPONENT	J	0.39	0.34	0.58
RELATIVE EVENNESS	RJ	0.36	0.33	0.56
MEAN NUMBER OF INDIVIDUALS/TAXA	L	56.50	135.87	36.00
NUMBER/ML OF MOST ABUNDANT TAXON	K	362.00	3007.00	297.00

LAKE NAME: NICASIO RES.
STORET NUMBER: 0617

CONTINUED

TAXA	FORM	03 13 75			06 26 75			11 11 75		
		IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML
ANABAENA	FIL				81	0.6	25			
ANKISTRODESMUS FALCATUS V. ACICULARIS	CEL						X			
APHANIZOMENON FLOS-AQUAE	FIL				121	3.7	149			X
APHANOCAPSA DELICATISSIMA	COL				141	2.4	99			
ASTERIONELLA FORMOSA	CEL					0.6	25	13	12.5	99
CHROOMONAS ?	CEL	13	33.3	226		7.3	298		4.2	33
CLOSTERIUM	CEL								4.2	33
COELASTRUM MICROPORUM	COL					1.2	50			
COELASTRUM RETICULATUM V. POLYCHORDON	COL									X
CRUCIGENIA CRUCIFERA	COL					3.0	124			
CRUCIGENIA QUADRATA	COL						X			
CRYPTOMONAS EROSA	CEL	11	53.4	362			X	11	37.5	297
CYCLOTELLA MENEGHINIANA	CEL			X						
EUGLENA EHRENBERGII	CEL									X
GLENODINIUM GYMNODINIUM	CEL			X						
KIRCHNERIELLA	CEL						X			
MELOSIRA DISTANS	CEL			X			X			
MELOSIRA GRANULATA	CEL									X
MELOSIRA ITALICA F. CURVATA	CEL			X			X	15	9.3	66
MELOSIRA VARIANS	COL					1.2	50			
MERISMOPEDIA GLAUCA	COL			X						
MICROCYSTIS INCERTA	COL						X			
NAVICULA	CEL						X			
OOCYSTIS	CEL						X			
OSCILLATORIA	FIL			X						
OSCILLATORIA LIMNETICA	FIL									X
PANDORINA MORUM	COL			X						
PEDIASTRUM BORYANUM	COL									X
PEDIASTRUM DUPLEX	COL						X	12	16.7	132
PEDIASTRUM DUPLEX V. CLATHRATUM	COL					0.6	25			
PEDIASTRUM DUPLEX V. RETICULATUM	COL					0.6	25			
PEDIASTRUM SIMPLEX V. DUODENARIUM	COL						X	4	12.5	99
PHACUS	CEL						X			
PHACUS HELIKOIDES	CEL						X			
PHACUS TORTUS	CEL			X						X
SCENEDESMUS	COL						X			
SCENEDESMUS ARCUATUS	COL					0.6	25			X
SCENEDESMUS QUADRICAUDA	COL						X			
SCHROEDERIA SETIGERA	CEL					0.6	25			
SPHAEROCYSTIS SCHROETERI	COL									X
STAURASTRUM	CEL						X			X
STEPHANODISCUS	CEL	13	13.3	90	11	73.8	3007			X
STEPHANODISCUS NIAGARAE	CEL				13	3.7	149			
SYNEDRA	CEL									X
TRACHELOMONAS HISPIDA	CEL			X						
TRACHELOMONAS INTERMEDIA	CEL								4.2	33
TRACHELOMONAS URCEOLATA V. OVATAS	CEL									X
TRACHELOMONAS VOLVOCINA	CEL									X
TOTAL				678			4076			792

LAKE NAME: LOWER OTAY RES.
STORET NUMBER: 0618

NYGAARD TROPHIC STATE INDICES

DATE	03 07 75	06 20 75	11 14 75
MYXOPHYCEAN	0/01 O	2.50 E	3.00 E
CHLOROPHYCEAN	9.00 E	1.00 E	9.00 E
EUGLENOPHYTE	0/09 ?	0.29 E	0/12 ?
DIATOM	0.14 ?	0.25 ?	0.29 ?
COMPOUND	10.0 E	5.00 E	14.0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 07 75	06 20 75	11 14 75
GENUS	04	05	16
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 07 75	06 20 75	11 14 75
AVERAGE DIVERSITY	H	2.28	2.32	1.62
NUMBER OF TAXA	S	21.00	20.00	25.00
NUMBER OF SAMPLES COMPOSITED	M	2.00	2.00	2.00
MAXIMUM DIVERSITY	MAXH	4.39	4.32	4.64
MINIMUM DIVERSITY	MINH	0.07	0.26	0.04
TOTAL DIVERSITY	D	9024.24	1888.48	16034.76
TOTAL NUMBER OF INDIVIDUALS/ML	N	3958.00	814.00	9898.00
EVENNESS COMPONENT	J	0.52	0.54	0.35
RELATIVE EVENNESS	RJ	0.52	0.51	0.35
MEAN NUMBER OF INDIVIDUALS/TAXA	L	188.48	40.70	395.92
NUMBER/ML OF MOST ABUNDANT TAXON	K	2170.00	370.00	6873.00

LAKE NAME: LOWER OTAY RES,
STORET NUMBER: 0618

CONTINUED

TAXA	FORM	03 07 75			06 20 75			11 14 75		
		IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML
ANABAENA	FIL				15	9.1	74			
APHANIZOMENON FLOS-AQUAE	FIL				11	45.5	370			
ASTERIONELLA FORMOSA	CEL	11	54.8	2170						
CHLAMYDOMONAS	CEL							12	14.4	1430
CLOSTERIUM	CEL						X			
COCCONEIS	CEL					4.5	37			X
COELASTRUM MICROPORUM	COL	1	12.5	00495						
COSMARIUM	CEL						X			
CRYPTOMONAS EROSA	CEL	12	9.6	381				13	3.9	388
CYCLOTELLA MENEGHINIANA	CEL									X
CYMBELLA	CEL			X						
DACTYLOCOCCOPSIS IRREGULARIS	CEL				12	18.2	148	14	4.4	440
DICTYOSPHAERIUM PULCHELLUM	COL									X
DINOBRION DIVERGENS	CEL				13	9.1	74			
DIPLOPSALIS ACUTA	CEL						X			
ELAKATOTHRIX GELATINOSA	COL			X						
EPITHEMIA	CEL			X			X			
EPITHEMIA SOREX	CEL									X
EUGLENA	CEL						X			
FRAGILARIA CROTONENSIS	CEL						X			X
GLENODINIUM OCULATUM	CEL		1.0	38						
GYROSIGMA	CEL			X			X			
HALLOMONAS PSEUDOCORONATA	CEL			X						
MELOSIRA	CEL						X			
MELOSIRA GRANULATA	CEL									X
MERISMOPEDIA MINIMA	COL							1	1.1	110
NOUGEOTIA	FIL						X			
NITZSCHIA	CEL							1	0.6	55
NITZSCHIA VERMICULARIS	CEL									X
OOCYSTIS	CEL	15	6.7	266			X			
OSCILLATORIA AGARDHII	FIL				14	9.1	74			
OSCILLATORIA LIMNETICA	FIL						X	11	69.4	6873
PEDIASTRUM BORYANUM	COL	14	3.9	152						X
PEDIASTRUM DUPLEX	COL			X						
PERIDINIUM INCONSPICUUM	CEL									X
PERIDINIUM QUADRIDENS ?	CEL						X			
RHOPALODIA GIBBA	CEL			X						
SCENEDESMUS	COL							2	2.2	220
SCENEDESMUS BICAUDATUS	COL	1	4.8	190						
SCENEDESMUS BIJUGA	COL	1	2.9	114						X
SCENEDESMUS DIMORPHUS	COL							15	2.2	220
SCENEDESMUS QUADRICAUDA	COL									X
SCHROEDERIA SETIGERA	CEL								0.6	55
SPHAEROCYSTIS SCHROETERI	COL	1	1.0	38						
STAURASTRUM	CEL			X						X
STEPHANODISCUS	CEL	1	1.0	38						
SURIRELLA ELEGANS	CEL									X
SURIRELLA OVATA	CEL			X						
SYNEDRA ULNA	CEL			X						X
TETRAEDRON MINIMUM	CEL							1	1.1	110
TETRAEDRON MINIMUM V. SCROBICULATUM	CEL	1	1.9	76						
TRACHELOMONAS	CEL						X			
TREUBARIA TRIAPPENDICULATA	CEL				1	4.5	37			X
TOTAL				3958			814			9898

LAKE NAME: LAKE PILLSBURY
STORET NUMBER: 0619

NYGAARD TROPHIC STATE INDICES

DATE	03 12 75	06 26 75	11 11 75
MYXOPHYCEAN	0/0 D	01/0 E	03/0 E
CHLOROPHYCEAN	0/0 D	0/0 D	0/0 D
EUGLENOPHYTE	01/0 E	1.00 E	0/03 ?
DIATOM	0/01 ?	0/01 ?	0.75 E
COMPOUND	01/0 E	02/0 E	06/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 12 75	06 26 75	11 11 75
GENUS	00	00	01
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 12 75	06 26 75	11 11 75
AVERAGE DIVERSITY	H	1.00	0.41	1.21
NUMBER OF TAXA	S	2.00	7.00	16.00
NUMBER OF SAMPLES COMPOSITED	M	3.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	1.00	2.81	4.00
MINIMUM DIVERSITY	MINH	0.28	0.04	0.35
TOTAL DIVERSITY	D	20.00	815.49	534.82
TOTAL NUMBER OF INDIVIDUALS/ML	N	20.00	1989.00	442.00
EVENNESS COMPONENT	J	1.00	0.15	0.30
RELATIVE EVENNESS	RJ	1.00	0.14	0.24
MEAN NUMBER OF INDIVIDUALS/TAXA	L	10.00	284.14	27.63
NUMBER/ML OF MOST ABUNDANT TAXON	K	10.00	1861.00	331.00

LAKE NAME: LAKE PILLSBURY
STORET NUMBER: 0419

CONTINUED

TAXA	FORM	03 12 75 IS	03 12 75 %C	03 12 75 ALGAL UNITS PER ML	06 26 75 IS	06 26 75 %C	06 26 75 ALGAL UNITS PER ML	11 11 75 IS	11 11 75 %C	11 11 75 ALGAL UNITS PER ML
ANABAENA	FIL									X
ANABAENA CIRCINALIS	FIL				11	93.6	1861			
CERATIUM HIRUNDINELLA	CEL						X			X
CHLOROPHYTAN COCCOID CELL	CEL									X
CHROOMONAS ?	CEL							14	8.4	37
COCCONEIS	CEL									X
CRYPTOMONAS EROSA	CEL				12	3.2	64	12	8.4	37
CRYPTOMONAS OVATA	CEL						X			
DACTYLOCOCCOPSIS IRREGULARIS	CEL							13	8.4	37
EUGLENA	CEL	12	50.0	10						
MELOSIRA DISTANS	CEL									X
MELOSIRA GRANULATA	CEL									X
MELOSIRA ITALICA	CEL							11	74.9	331
NITZSCHIA VERMICULARIS	CEL									X
OSCILLATORIA	FIL									X
PANDORINA MORUM	COL									X
PERIDINIUM	CEL						X			X
SURIRELLA	CEL									X
SYNEDRA	CEL	11	50.0	10			X			
SYNEDRA ULNA	CEL									X
TRACHELOMONAS INTERMEDIA	CEL				13	3.2	64			
TOTAL				20			1989			442

LAKE NAME: SANTO MARGARITA LAKE
STORET NUMBER: 0620

NYGAARD TROPHIC STATE INDICES

DATE	03 10 75	06 25 75	11 12 75
MYXOPHYCEAN	0/0 D	4.00 E	05/0 E
CHLOROPHYCEAN	01/0 E	2.00 E	01/0 E
EUGLENOPHYTE	0/01 ?	0/06 ?	0/06 ?
DIATOM	0.25 ?	0/06 ?	0.20 ?
COMPOUND	02/0 E	6.00 E	07/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 10 75	06 25 75	11 12 75
GENUS	00	07	00
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 10 75	06 25 75	11 12 75
AVERAGE DIVERSITY	H	0.15	1.54	2.68
NUMBER OF TAXA	S	8.00	19.00	19.00
NUMBER OF SAMPLES COMPOSITED	M	3.00	3.00	3.00
MAXIMUM DIVERSITY	MAXH	3.00	4.25	4.25
MINIMUM DIVERSITY	MINH	0.02	0.07	0.24
TOTAL DIVERSITY	D	754.35	4912.60	2278.00
TOTAL NUMBER OF INDIVIDUALS/ML	N	5029.00	3190.00	850.00
EVENNESS COMPONENT	J	0.05	0.36	0.63
RELATIVE EVENNESS	RJ	0.05	0.36	0.61
MEAN NUMBER OF INDIVIDUALS/TAXA	L	628.63	167.89	44.74
NUMBER/ML OF MOST ABUNDANT TAXON	K	4920.00	2181.00	304.00

LAKE NAME: SANTO MARGARITA LAKE CONTINUED
STORET NUMBER: 0620

TAXA	FORM	03 10 75			06 25 78			11 12 75		
		IB	%C	ALGAL UNITS PER ML	IB	%C	ALGAL UNITS PER ML	IB	%C	ALGAL UNITS PER ML
ANABAENA	FIL						X			X
ANABAENOPSIS CIRCULARIS	FIL				14	4.1	130			
ANKISTRODESMUS FALCATUS	CEL			X						
ANKISTRODESMUS FALCATUS V. ACICULARIS	CEL						X			
ASTERIONELLA FORMOSA	CEL	11	97.9	4920			X			
CERATIUM HIRUNDINELLA F. BRACHICERAS	CEL							11	17.9	152
CHLOROPHYTAN COCCOID CELL	CEL							1	3.5	30
CLOSTERIUM	CEL						X			
COCCONEIS	CEL									X
CRYPTOMONAS EROSA	CEL	1	3.5	30				1	3.5	30
DACTYLOCOCCOPSIS IRREGULARIS	CEL	12	2.2	109				12	35.8	306
DINOBRYON SOCIALE	CEL							14	10.7	91
DIPLONEIS	CEL				3	5.1	163			X
EPITHEMIA	CEL									
EPITHEMIA SOREX	CEL						X			
FRAGILARIA	CEL									X
GLENODINIUM OCULATUM	CEL			X			X			
LYNGBIA	FIL						X	15	7.2	61
MERISMOPEDIA TENUISSIMA	COL									X
NOUGEOTIA	FIL							1	3.5	30
NAVICULA	CEL									X
NITZSCHIA	CEL				11	68.4	2181			
OSCILLATORIA LIMNETICA	FIL									X
PERIDINIUM	CEL			X						
PERIDINIUM INCONSPICUUM	CEL				15	4.1	130			
PERIDINIUM QUADRIDENS	CEL			X						
RHOPALODIA GIBBA	CEL						X			
SPIROGYRA	CEL						X			X
STEPHANODISCUS	FIL						X			
SYNEDRA	CEL			X						
SYNEDRA ULNA	CEL				12	15.3	488	1	3.5	30
TETRAEDRON MINIMUN	CEL						X			
TREUBARIA TRIAPPENDICULATA	CEL									
	CEL				1	3.1	98			X
TOTAL				5039			3190			850

LAKE NAME: LAKE SHASTA
STORET NUMBER: 0621

NYGAARD TROPHIC STATE INDICES

DATE	03 26 75	07 14 75	11 03 75
MYXOPHYCEAN	0/0 O	0/01 O	01/0 E
CHLOROPHYCEAN	0/0 O	0/01 O	0/0 O
EUGLENOPHYTE	0/0 ?	0/0 ?	0/01 ?
DIATOM	1,00 E	1,00 E	1,00 E
COMPOUND	03/0 E	4,00 E	04/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 26 75	07 14 75	11 03 75
GENUS	00	00	03
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 26 75	07 14 75	11 03 75
AVERAGE DIVERSITY	H	1,03	1,92	1,36
NUMBER OF TAXA	S	8,00	12,00	8,00
NUMBER OF SAMPLES COMPOSITED	M	7,00	8,00	9,00
MAXIMUM DIVERSITY	MAXH	3,00	3,58	3,00
MINIMUM DIVERSITY	MINH	0,04	0,48	0,10
TOTAL DIVERSITY	D	2036,31	405,12	1083,92
TOTAL NUMBER OF INDIVIDUALS/ML	N	1977,00	211,00	797,00
EVENNESS COMPONENT	J	0,34	0,54	0,45
RELATIVE EVENNESS	RJ	0,34	0,47	0,44
MEAN NUMBER OF INDIVIDUALS/TAXA	L	247,13	17,58	99,63
NUMBER/ML OF MOST ABUNDANT TAXON	K	1475,00	85,00	557,00

LAKE NAME: LAKE SHASTA
STORET NUMBER: 0621

CONTINUED

TAXA	FORM	03 26 75			07 14 75			11 03 75		
		IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML
ANABAENA	FIL									X
ASTERIONELLA FORMOSA	CEL	12	20,9	413			X			X
CERATIUM HIRUNDINELLA	CEL						X			
CHLOROPHYTAN COCCOID CELLED COLONY	COL				14	19,9	42			
CHROOMONAS ?	CEL							14	10,0	80
CRYPTOMONAS	CEL	13	1,5	30	11	40,3	85			
FRAGILARIA CROTONENSIS	CEL						X			X
MELOSIRA	CEL							13	10,0	80
MELOSIRA DISTANS	CEL			X			X	11	69,9	557
MELOSIRA ITALICA	CEL			X			X			
MELOSIRA VARIANS	CEL						X			
NAVICULA	CEL			X						
PERIDINIUM	CEL	14	3,0	59						
RHOPALODIA GIBBA	CEL						X			
STAURASTRUM	CEL						X			
STEPHANODISCUS	CEL	11	74,6	1475	13	19,9	42			X
SYNEDRA	CEL			X				12	10,0	80
SYNEDRA ULNA	CEL				13	19,9	42			
TOTAL				1977			211			797

LAKE NAME: SHAVER
STORET NUMBER: 0622

NYGAARD TROPHIC STATE INDICES

DATE	06 04 75	06 24 75	11 13 75
MYXOPHYCEAN	0/0 O	0/0 O	01/0 E
CHLOROPHYCEAN	01/0 E	05/0 E	01/0 E
EUGLENOPHYTE	0/01 ?	0/05 ?	0/02 ?
DIATOM	0,33 E	0,50 E	0,20 ?
COMPOUND	03/0 E	06/0 E	03/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	06 04 75	06 24 75	11 13 75
GENUS	00	00	00
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		06 04 75	06 24 75	11 13 75
AVERAGE DIVERSITY	H	2,18	1,90	1,16
NUMBER OF TAXA	S	12,00	13,00	9,00
NUMBER OF SAMPLES COMPOSITED	M	2,00	2,00	2,00
MAXIMUM DIVERSITY	MAXH	3,58	3,70	3,17
MINIMUM DIVERSITY	MINH	1,11	0,31	0,34
TOTAL DIVERSITY	D	161,32	733,40	254,04
TOTAL NUMBER OF INDIVIDUALS/ML	N	74,00	386,00	219,00
EVENNESS COMPONENT	J	0,61	0,51	0,37
RELATIVE EVENNESS	RJ	0,44	0,47	0,29
MEAN NUMBER OF INDIVIDUALS/TAXA	L	6,17	29,69	24,33
NUMBER/ML OF MOST ABUNDANT TAXON	K	20,00	193,00	153,00

LAKE NAME: SHAVER
STORET NUMBER: 0622

CONTINUED

TAXA	FORM	06 04 75 %B	%C	ALGAL UNITS PER ML	06 24 75 %B	%C	ALGAL UNITS PER ML	11 13 75 %B	%C	ALGAL UNITS PER ML
ACHNANTHES LANCEOLATA	CEL							13	10.0	22
AMPHORA	CEL			X						
ANKISTRODESMUS FALCATUS V. ACICULARIS	CEL	15	9.5	7			X	12	20.1	44
ASTERIONELLA FORMOSA	CEL	13	27.0	20						
CHROOMONAS ?	CEL				13	80.0	193			
COCCOID CELL	CEL			X						
CRYPTOMONAS	CEL				13	9.3	32	11	69.9	193
CYCLOTELLA	CEL			X						X
CYMBELLA MINUTA	CEL				14	9.3	32			
DINOBRYON DIVERGENS	COL						X			
ELAKATOTHRIX GELATINOSA	CEL						X			
GLENODINIUM OCULATUM	CEL			X						
HANNAEA ARCUS	CEL									
MALLOMONAS ACAROIDES	CEL				11	36.1	97			
MELOSIRA	CEL			X			X			
MELOSIRA ITALICA	CEL									X
NAVICULA CUSPIDATA	CEL			X						
NITZSCHIA	CEL									X
NITZSCHIA VERMICULARIS	CEL			X						
OOCYSTIS	CEL						X			
OSCILLATORIA	FIL									X
PERIDINIUM BIPES	CEL	11	27.0	20						
SCHROEDERIA SETIGERA	CEL						X			
SPHAEROCYSTIS SCHROETERI	COL						X			
SYNEDRA	CEL	13	27.0	20	15	9.3	32			X
SYNEDRA ULNA	CEL	14	9.5	7						
TABELLARIA FENESTRATA	CEL						X			X
TOTAL				74			386			319

LAKE NAME: SILVER LAKE
STORET NUMBER: 0623

NYGAARD TROPHIC STATE INDICES

DATE	06 10 75	06 30 75	11 05 75
MYXOPHYCEAN	0/0 D	0/0 D	0/0 D
CHLOROPHYCEAN	0/0 D	0/0 D	0/0 D
EUGLENOPHYTE	0/0 ?	0/0 ?	0/0 ?
DIATOM	0,14 ?	0,17 ?	0/07 ?
COMPOUND	01/0 E	01/0 E	0/0 D

PALMER'S ORGANIC POLLUTION INDICES

DATE	06 10 75	06 30 75	11 05 75
GENUS	00	02	00
SPECIES	00	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		06 10 75	06 30 75	11 05 75
AVERAGE DIVERSITY	H	1,69	2,08	1,36
NUMBER OF TAXA	S	15,00	11,00	10,00
NUMBER OF SAMPLES COMPOSITED	M	1,00	1,00	1,00
MAXIMUM DIVERSITY	MAXH	3,91	3,46	3,32
MINIMUM DIVERSITY	MINH	0,26	0,20	0,65
TOTAL DIVERSITY	D	966,69	1106,56	153,68
TOTAL NUMBER OF INDIVIDUALS/ML	N	572,00	532,00	113,00
EVENNESS COMPONENT	J	0,43	0,60	0,41
RELATIVE EVENNESS	RJ	0,40	0,58	0,27
MEAN NUMBER OF INDIVIDUALS/TAXA	L	38,13	48,36	11,30
NUMBER/ML OF MOST ABUNDANT TAXON	K	343,00	228,00	57,00

LAKE NAME: SILVER LAKE
STORET NUMBER: 0623

CONTINUED

TAXA	FORM	06 10 75 IS	06 10 75 %C	06 10 75 ALGAL UNITS PER ML	06 30 75 IS	06 30 75 %C	06 30 75 ALGAL UNITS PER ML	11 05 75 IS	11 05 75 %C	11 05 75 ALGAL UNITS PER ML
ACHNANTHES	CEL			X						
ASTERIONELLA FORMOSA	CEL	13	6,6	38	13	14,3	76			X
CHROOMONAS ?	CEL	12	60,0	343	12	42,9	228	13	50,0	57
CHRYSOPHYTAN COCCOID CELL	CEL			X						
COCCONEIS	CEL			X						
CRYPTOMONAS EROSA	CEL	14	6,6	38			X	11	39,0	45
CYST	CEL			X						
DINOBRYON CYLINDRICUM	CEL	11	20,1	115	11	21,4	114			
DINOBRYON DIVERGENS	CEL			X				13	9,7	11
FRAGILARIA	CEL			X						
FRAGILARIA CROTONENSIS	CEL			X			X			X
GLENODINIUM							X			
GLENODINIUM OCULATUM	CEL			X						
GYROSIGMA #1	CEL									X
GYROSIGMA #2	CEL									X
MELOSIRA							X			
MELOSIRA DISTANS	CEL			X						
NAVICULA							X			
NAVICULA ?	CEL									X
SYNEDRA	CEL				19	14,3	76			X
SYNEDRA ULNA	CEL	15	6,6	38	14	7,1	38			
TABELLARIA FENESTRATA	CEL			X			X			X
TOTAL				572			932			113

LAKE NAME: TULLOCK RES.
STORET NUMBER: 0624

NYGAARD TROPHIC STATE INDICES

DATE	03 14 75	06 25 75	11 12 75
MYXOPHYCEAN	03/0 E	03/0 E	01/0 E
CHLOROPHYCEAN	02/0 E	01/0 E	02/0 E
EUGLENOPHYTE	0,20 ?	0/04 ?	0/03 ?
DIATOM	0,75 E	1,00 E	0,60 E
COMPOUND	09/0 E	07/0 E	06/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 14 75	06 25 75	11 12 75
GENUS	10	05	05
SPECIES	03	00	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 14 75	06 25 75	11 12 75
AVERAGE DIVERSITY	H	2,34	2,61	2,55
NUMBER OF TAXA	S	16,00	18,00	19,00
NUMBER OF SAMPLES COMPOSITED	M	3,00	3,00	3,00
MAXIMUM DIVERSITY	MAXH	4,00	4,17	4,25
MINIMUM DIVERSITY	MINH	0,02	0,20	0,34
TOTAL DIVERSITY	D	22080,24	2565,63	1425,45
TOTAL NUMBER OF INDIVIDUALS/ML	N	9436,00	983,00	559,00
EVENNESS COMPONENT	J	0,59	0,63	0,60
RELATIVE EVENNESS	RJ	0,59	0,61	0,57
MEAN NUMBER OF INDIVIDUALS/TAXA	L	589,75	54,61	29,42
NUMBER/ML OF MOST ABUNDANT TAXON	K	3864,00	432,00	225,00

LAKE NAME: TULLOCK RES.
STORET NUMBER: 0624

CONTINUED

TAXA	FORM	03 14 75			06 25 75			11 12 75		
		IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML	IS	%C	ALGAL UNITS PER ML
ACHNANTHES	CEL	12	40.9	3864						X
ANABAENA	CEL			X			X			
ANABAENA #1	CEL						X			
ANKISTRODESMUS FALCATUS	CEL								6.6	37
ANKISTRODESMUS FALCATUS V. ACICULARIS	CEL						X			
ANKISTRODESMUS FALCATUS V. MIRABILIS	CEL		3.4	223						
ASTERIONELLA FORMOSA	CEL				11	43.9	632	1	6.6	37
ASTERIONELLA FORMOSA V. GRACILLIMA	CEL	11	21.3	2006						
CERATIUM HIRUNDINELLA F. BRACHYCERAS	CEL									X
CHROOMONAS ?	CEL						9.0	79		
CRYPTOMONAS EROSA	CEL	15	3.1	297			4.0	39	16	6.6	37
DINOBRYON BAVARICUM	CEL				15	8.0	79			
ENTOMONEIS ALATA	CEL									X
EUDORINA ELEGANS	COL						X			
FRAGILARIA CROTONENSIS	CEL		1.6	149	1	8.0	79			X
GLENODINIUM	CEL			X						
GLENODINIUM GYMNODINIUM	CEL			X						
GLENODINIUM GYMNODINIUM V. BISCUTELLIFORME	CEL						X	1	20.0	113
GLENODINIUM OCULATUM	CEL									X
MELOSIRA	CEL			X			X			X
MELOSIRA DISTANS	CEL		3.1	297			X			X
OSCILLATORIA	FIL			X						
OSCILLATORIA LIMNETICA	FIL		0.8	74	14	8.0	79	11	40.3	228
PANDORINA MORUM	CEL						4.0	39			X
PERIDINIUM	CEL								6.6	37
PERIDINIUM INCONSPICUUM	CEL						X			X
PERIDINIUM QUADRIDENS	CEL						X			
SCENEDESMUS BIJUGA	COL									X
SPHAEROCYSTIS SCHROETERI	COL			X						
STEPHANODISCUS	CEL	16	7.9	743	12	13.9	118	1	6.6	37
SURIRELLA OVATA	CEL									X
SYNEDRA	CEL	13	18.9	1783			4.0	39	6.6	37
TRACHELOMONAS INTERMEDIA	CEL			X						
TOTAL				9436			983			859

LAKE NAME: UPPER TWIN LAKE
STORET NUMBER: 0625

NYGAARD TROPHIC STATE INDICES

DATE	06 10 75
MYXOPHYCEAN	0/0 O
CHLOROPHYCEAN	01/0 E
EUGLENOPHYTE	0/01 ?
DIATOM	0,29 ?
COMPOUND	03/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	06 10 75
GENUS	03
SPECIES	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		06 10 75
AVERAGE DIVERSITY	H	2,12
NUMBER OF TAXA	S	14,00
NUMBER OF SAMPLES COMPOSITED	M	1,00
MAXIMUM DIVERSITY	MAXH	3,81
MINIMUM DIVERSITY	MINH	0,25
TOTAL DIVERSITY	D	1161,76
TOTAL NUMBER OF INDIVIDUALS/ML	N	548,00
EVENNESS COMPONENT	J	0,56
RELATIVE EVENNESS	RJ	0,53
MEAN NUMBER OF INDIVIDUALS/TAXA	L	39,14
NUMBER/ML OF MOST ABUNDANT TAXON	K	275,00

LAKE NAME: UPPER TWIN LAKE CONTINUED
STORET NUMBER: 0625

06 10 75

TAXA	FORM	IB	%C	ALGAL UNITS PER ML
ASTERIONELLA FORMOSA	CEL	15	7,1	39
CHROOMONAS ?	CEL	11	50,2	275
CRYPTOMONAS EROSA	CEL	1	7,1	39
DINOBRYON CYLINDRICUM	CEL	1		X
FRAGILARIA	CEL	1		X
FRAGILARIA CROTONENSIS	CEL	1		X
MELOSIRA ITALICA	CEL	12	14,2	78
MERIDION CIRCULARE	CEL	1		X
PERIDINIUM WILLEI	CEL	1		X
RHOPALODIA GIBBA	CEL	1		X
SPHAEROCYSTIS SCHROETERI	COL	1		X
STEPHANODISCUS	CEL	14	7,1	39
SYNEDRA	CEL	13	14,3	78
TABELLARIA FENESTRATA	CEL	1		X
TOTAL				548

LAKE NAME: LOWER TWIN LAKE
STORET NUMBER: 0626

NYGAARD TROPHIC STATE INDICES

DATE	03 19 75
MYXOPHYCEAN	01/0 E
CHLOROPHYCEAN	01/0 E
EUGLENOPHYTE	0/02 ?
DIATOM	0,33 E
COMPOUND	04/0 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	03 19 75
GENUS	01
SPECIES	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		03 19 75
AVERAGE DIVERSITY	H	1,84
NUMBER OF TAXA	S	12,00
NUMBER OF SAMPLES COMPOSITED	M	1,00
MAXIMUM DIVERSITY	MAXH	3,58
MINIMUM DIVERSITY	MINH	0,38
TOTAL DIVERSITY	D	506,00
TOTAL NUMBER OF INDIVIDUALS/ML	N	275,00
EVENNESS COMPONENT	J	0,51
RELATIVE EVENNESS	RJ	0,46
MEAN NUMBER OF INDIVIDUALS/TAXA	L	22,92
NUMBER/ML OF MOST ABUNDANT TAXON	K	122,00

LAKE NAME: LOWER TWIN LAKE
STORET NUMBER: 0626

CONTINUED

03 19 75

TAXA	FORM	10	8C	ALGAL UNITS PER ML
ANABAENA	FIL	14	11,3	31
ASTERIONELLA FORMOSA	CEL			X
DINOBRYON DIVERGENS	CEL			X
ELAKATOTHRIX GELATINOSA	COL			X
FRAGILARIA CROTONENSIS	CEL			X
MELOSIRA ITALICA	CEL	11	44,4	122
PERIDINIUM WILLEI	CEL			X
STEPHANODISCUS	CEL	12	22,2	61
SURIRELLA ELEGANS	CEL			X
SYNEDRA	CEL			X
SYNEDRA ULNA	CEL			X
TABELLARIA FENESTRATA	CEL	13	22,2	61
TOTAL				275

LAKE NAME: KIRMAN
STORET NUMBER: 0627

NYGAARD TROPHIC STATE INDICES

DATE	07 01 75
MYXOPHYCEAN	2,00 E
CHLOROPHYCEAN	4,00 E
EUGLENOPHYTE	0/06 ?
DIATOM	0/12 ?
COMPOUND	6,00 E

PALMER'S ORGANIC POLLUTION INDICES

DATE	07 01 75
GENUS	00
SPECIES	00

SPECIES DIVERSITY AND ABUNDANCE INDICES

DATE		07 01 75
AVERAGE DIVERSITY	H	1,88
NUMBER OF TAXA	S	21,00
NUMBER OF SAMPLES COMPOSITED	M	1,00
MAXIMUM DIVERSITY	MAXH	4,39
MINIMUM DIVERSITY	MINH	1,36
TOTAL DIVERSITY	D	227,48
TOTAL NUMBER OF INDIVIDUALS/ML	N	121,00
EVENNESS COMPONENT	J	0,43
RELATIVE EVENNESS	RJ	0,18
MEAN NUMBER OF INDIVIDUALS/TAXA	L	5,76
NUMBER/ML OF MOST ABUNDANT TAXON	K	44,00

LAKE NAME: KIRNAN
STORET NUMBER: 0627

CONTINUED

07 01 75

TAXA	FORM	%	%	ALGAL UNITS PER ML
AMPHORA	CEL			X
ANABAENA	FIL			X
ASTERIONELLA FORMOSA	CEL			X
CERATIUM HIRUNDINELLA	CEL			X
COCCONEIS PLACENTULA	CEL			X
CRYPTOMONAS EROSA	CEL	12	36,4	44
CYMBELLA	CEL			X
CYMBELLA TRIANGULUM	CEL			X
EUNOTIA CURVATA	CEL			X
GOMPHONEMA	CEL			X
GYNOSIGMA	CEL			X
NAVICULA	CEL			X
NAVICULA CUSPIDATA	CEL			X
OOCYSTIS	CEL			X
PEDIASTRUM BORYANUM	COL			X
RIVULARIA ?	FIL	14	9,1	11
SCENEDESMUS BIJUGA	CEL			X
SPHAEROCYSTIS SCHROETERI	COL	11	27,3	33
STAURASTRUM	CEL			X
SYNEDRA	CEL	13	27,3	33
SYNEDRA ULNA	CEL			X
TOTAL				121